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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the PCT member countries see the notice appearing in the Official Gazette at 1017 O.G. 10 on Apr. 13, 1982. For use of the European Patent Office as a Searching Authority for PCT applications filed in the United States, see the notice in the Official Gazette of Sept. 28, 1982 at 1022 O.G. 52.

Note that the domestic PCT fees have been increased as of Oct. 1, 1982 by a rule change to 37 CFR 1.445 that was published at 1021 O.G. 11 on Aug. 10, 1982. Also note that the international PCT fees have changed as of Jan. 1, 1983 and the Search Fee for the European Patent Office as Searching Authority changed as of Jan. 22, 1983. The notice regarding the change in international fees and the Search Fee for the European Patent Office appeared at 1025 O.G. 27, on 28 Dec. 1982. The current schedule of fees is as follows:

Transmittal fee	$ 125.00
Search fee	
U.S. Patent and Trademark Office as Searching Authority	
• No corresponding prior U.S. national application filed	500.00
• Corresponding prior U.S. national application filed	250.00
European Patent Office as Searching Authority	
• All cases	670.00
International Fees	
Basic Fees (first 30 pages)	265.00
Basic Supplemental Fee (for each page over 30)	5.00
Designation fee (for each national or regional office)	65.00

GERALD J. MOSSINGHOFF,
Commissioner of Patents and Trademarks.

Dec. 3, 1982.

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

3,948,449, Re. S.N. 477,842, Filed Mar. 22, 1983, Cl. 241/41, APPARATUS FOR THE TREATMENT OF LIGNOCELLULOSIC MATERIAL, Kenneth C. Logan, et al., Owner of Record: *Reed Ltd., Toronto, Ontario, Canada,* Attorney or Agent: Lawrence I. Lerner, et al., Ex. Gp.: 322

3,980,249, Re. S.N. 476,775, Filed Mar. 18, 1983, Cl. 242/118.31, HIGH SPEED CARRIER WITH DECKLED UNDERPLY, McCleery B. Cunningham, et al., Owner of Record: *Sonoco Products Co., Hartsville, S.C.,* Attorney or Agent: Samuel G. Layton, Jr., et al., Ex. Gp.: 245

3,989,072, Re. S.N. 476,531, Filed Mar. 18, 1983, Cl. 141/311R, NOZZLE SEALING DEVICE AND ASSEMBLY, Frederick L. Voelz, et al., Owner of Record: *Atlantic Richfield Co., Philadelphia, Pa.,* Attorney or Agent: George B. Newitt, Ex. Gp.: 243

4,118,720, Re. S.N. 476,633, Filed Mar. 18, 1983, Cl. 354/81, VIEWFINDER LEVELING DEVICE, Robert E. Gottschalk, Owner of Record: *Panavision, Inc., Tarzana, Calif.,* Attorney or Agent: John B. Young, Ex. Gp.: 211

4,254,502, Re. S.N. 472,264, Filed Mar. 3, 1983, Cl. 375/30, DIGITAL ENCODING CIRCUITRY, Richard E. DeFreitas, et al., Owner of Record: *Delta Lab Research, Inc., Chelmsford, Mass.,* Attorney or Agent: Robert E. Hillman, Ex. Gp.: 233

4,256,904, Re. S.N. 475,435, Filed Mar. 15, 1983, Cl. 560/104, REACTIVE LIQUID POLYMERS, Changkiu K. Riew, Owner of Record: *The B. F. Goodrich Co., Akron, Ohio,* Attorney or Agent: Nestor W. Shust, et al., Ex. Gp.: 126

4,257,902, Re. S.N. 477,981, Filed Mar. 23, 1983, Cl. 252/18, WATER-BASED INDUSTRIAL FLUIDS, Haimi N. Singer, Owner of Record: *Singer and Hersch Industrial Dev., (Prop.) Ltd., Bramley, Transvaal, South Africa,* Attorney or Agent: Arthur Schwartz, et al., Ex. Gp.: 116

4,305,050, Re. S.N. 471,723, Filed Mar. 3, 1983, Cl. 332/110, CIRCUITRY FOR GENERATING REFERENCE SIGNAL FOR DELTA ENCODING SYSTEMS, Richard E. DeFreitas, Owner of Record: *Delta Lab Research, Inc., Chelmsford, Mass.,* Attorney or Agent: Robert E. Hillman, Ex. Gp.: 252

4,307,416, Re. S.N. 451,381, Filed Dec. 20, 1982, Cl. 358/124, TELEVISION SIGNAL MODIFICATION APPARATUS, John D. Spano, Owner of Record: *Inventor,* Attorney or Agent: H. Gordon Shields, Ex. Gp.: 222

4,327,811, Re. S.N. 475,835, Filed Dec. 8, 1980, Cl. 180/219, MOTOCYCLE EXHAUST SYSTEMS, Yoshiharu Isaka, Owner of Record: *Yamaha Motor Co., Ltd., Shizuoka-Ken, Japan,* Attorney or Agent: Ernest A. Bentler, Ex. Gp.: 316

4,342,653, Re. S.N. 475,963, Filed Dec. 16, 1980, Cl. 210/734, PROCESS FOR THE FLOCCULATION OF SUSPENDED SOLIDS, Frederick Halverson, Owner of Record: *Inventor,* Attorney or Agent: Michael J. Kelly, Ex. Gp.: 176

REQUESTS FOR REEXAMINATION FILED

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.21(b)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

4,113,845, Reexam. No. 90/000,360, Requested: Apr. 18, 1983, Cl. 423/342, DISPROPORTIONATION OF CHLOROSILANE, Carl J. Litteral, Owner of Record: *Union Carbide Corp., New York, N.Y.,* Attorney or Agent: Paul W. Leuzzi, II, Ex. Gp.: 113, Requester: Owner

4,160,892, Reexam. No. 90/000,358, Requested: Apr. 11, 1983, Cl. 219/83, METHOD AND APPARATUS FOR SEAM WELDING OVERLAPPED EDGES, Paul Opprecht & Martin Kaul, Owner of Record: *Paul Opprecht, Bergdietikon, Switzerland,* Attorney or Agent: Finnegan, Henderson, et al., Ex. Gp.: 213, Requester: Fuji Kogyosho, Yokohama, Japan

Notice of Suspension

Arthur M. Dula, III, of Houston, Tex., Registration No. 26,869, has been suspended from practice before the Patent and Trademark Office in patent cases for a period of two (2) years beginning May 1, 1983.

DONALD J. QUIGG,
Chairman, Committee on Enrollment.

Apr. 18, 1983.

Removal from Register

Pursuant to the provisions of 37 C.F.R. 1.347, a letter was directed on Nov. 19, 1982, to the last post office address furnished to the Committee on Enrollment by each of the persons whose name and address appear on the following list. With respect to some of the letters, no reply was received within the period of forty-five (45) days therein set. Other letters were returned by the Post Office with notations to the effect that the addressee was deceased, unknown, or had moved and left no forwarding address.

Accordingly, the names of the following persons have been removed from the Register of Patent Attorneys and Patent Agents.

DONALD J. QUIGG,
Chairman, Committee on Enrollment.

Apr. 18, 1983.

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Trademark Exposition

The Patent and Trademark Office is holding a Trademark Exposition in the Tourist Information Center (formerly the "Great Hall" and the Patent Office Search Room) in the Herbert C. Hoover Bldg., (Main Commerce), 14th St., and Constitution Ave., N.W., Washington, D.C., on Saturday and Sunday, July 9th and 10th, 1983. The theme of the exposition is:

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Parties wishing to exhibit should contact Peter Harab, at (703) 557-5239.

MARGARET M. LAURENCE,
Apr. 22, 1983. *Assistant Commissioner for Trademarks*

Adverse Decisions in Interference

In the designated interference involving the indicated claims of the following patents, final decisions having been rendered that the respective patentees were not the first inventors with respect to the claims listed.

Patent No. 4,032,816, Ferdinand Rokosz, SAFETY SWITCH WHICH RENDERS HID LAMP INOPERATIVE ON ACCIDENTAL BREAKAGE OF OUTER ENVELOPE, Interference No. 100,573, decided Feb. 18, 1983, claims 1-4.

Patent No. 4,104,240, Roelof Buter, HIGH SOLIDS PIGMENT COATING COMPOSITION, Interference No. 100,360, decided Nov. 2, 1982, claims 1, 2, & 4-9.

Patent No. 4,161,537, Yoshio Katsuda, Minoru Nakajima and Toshio Fujita, INSECTICIDAL ISO-

VALERIC ACID ESTERS, Interference No. 100,728, decided Jan. 14, 1983, claims 1–17 & 21.

Patent No. 4,164,719, John Young, Jack Clavell and George Gaskill, LOAD MANAGEMENT APPARATUS FOR RESIDENTIAL LOAD CENTERS, Interference No. 100,746, decided Mar. 7, 1983, claims 1–4.

Patent No. 4,178,572, George Gaskill and John Horn, LOAD MANAGEMENT APPARATUS, Interference No. 100,747, decided Feb. 18, 1983, claims 1 & 9.

Patent No. 4,223,288, Kent P. Stiner, MANUALLY OPERABLE AND SHUNT CONTROLLABLE CIRCUIT BREAKER, Interference No. 100,748, decided Feb. 24, 1983, claims 1–4, 6 & 10.

Patent No. 4,250,054, Wilfrid G. Shaw, Ernest C. Milberger and Serge R. Dolhyj, CATALYSTS FOR PRODUCING UNSATURATED ALIPHATIC ACIDS, Interference No. 100,908, decided Jan. 26, 1983, claim 1.

Patent No. 4,250,173, Barrie C. C. Cantello, HETEROCYCLIC COMPOUNDS AND PHARMACEUTICAL USE, Interference No. 100,889, decided Jan. 7, 1983, claims 1–17.

Patent No. 4,304,734, Jiri Jary, Veroslava Rihakova and Alena Zobacova, 6-AMINO-1-HYDROXYHEXYLIDENE DIPHOSPHONIC ACID, SALTS AND A PROCESS FOR PRODUCTION THEREOF, Interference No. 100,890, decided Dec. 1, 1982, claim 1.

NANNIE B. HENRY,
Deputy Clerk,
Board of Patent Interferences.

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,952,464, The Seeburg Corp. of Del., SOUND TRACK SELECTION PHONOGRAPH, **filed** June 3, 1977, D.C., N.D. Ill. (Chicago), Doc. 77 C 1978, *B.S.R. (U.S.A.), Ltd.* v. *The Seeburg Corp. of Del.* Above-captioned case dismissed with prejudice and with each party to bear its own costs. Filed May 4, 1979.

3,033,143, Verson Allsteel Press Co., HYDRAULIC PRESS; **3,075,485, same,** MOUNTING CONSTRUCTION FOR DIAPHRAGM IN FORMING PRESS; **3,084,716, same,** INFLATABLE FORMING DIAPHRAGM FOR HYDRAULIC PROCESS; **3,115,858, same,** HYDRAULIC PRESS; **3,125,053, same,** PRESSURE REGULATING MECHANISM FOR HYDRAULIC PRESS AND METHOD OF PROGRAMMING CAM THEREFOR; **3,262,294, same,** HYDRAULIC FORMING PRESS; **3,264,854, same,** METHOD AND APPARATUS FOR FORMING PRESSES; **3,290,919, same,** HIGH PRESSURE HYDRAULIC FORMING PRESS; **3,353,388, same,** CLOSURE FOR FLUID PRESSURE CHAMBER OF A HYDRAULIC PRESS; **3,430,473, same,** MOUNTING CONSTRUCTION FOR DIAPHRAGM IN FORMING PRESS; **3,531,966, same,** HYDRAULIC PRESS; **3,545,241, same,** HYDRAULIC PRESS, **filed** Nov. 15, 1982, D.C., N.D. Ill. (Chicago), Doc. 82 C 7007, *Verson Allsteel Press Co.* v. *Asea Aktiebolag.*

3,075,485. (See 3,033,143.)

3,084,716. (See 3,033,143.)

3,115,858. (See 3,033,143.)

3,125,053. (See 3,033,143.)

3,233,747, Halliburton Co., RESTORING MECHANISM FOR RAILWAY DRAFT GEAR; **3,301,410, same,** HYDRAULIC SHOCK ABSORBING APPARATUS; **3,451,561, same,** DRAFT GEAR TRAIN ACTION CONTROL SYSTEM; **3,463,328, same,** DRAFT GEAR TRAIN ACTION CONTROL VALVE; **3,568,855, same,** HYDRAULIC CUSHIONING APPARATUS FOR RAILWAY CARS; **3,589,527, same,** METHOD AND APPARATUS FOR CONTROLLING TRAIN ACTION EVENTS; **3,589,528, same,** VALVE APPARATUS FOR CONTROLLING TRAIN ACTION EVENTS; **3,598,249, same,** RAILWAY DRAFT APPLIANCE; **3,647,088, same,** HYDRAULIC CUSHIONING APPARATUS FOR RAILWAY CARS; **3,752,329, same,** HYDRAULIC CUSHIONING APPARATUS FOR RAILWAY CARS; **3,760,954, same,** RAILWAY COUPLING APPARATUS; **3,791,534, same,** VALVE APPARATUS FOR CONTROLLING TRAIN ACTION; **3,888,358, same,** COUPLING ASSEMBLY, **filed** Mar. 3, 1983, D.C. Neb. (Omaha), Doc. CV83-0-152, *American Hydraulics, Inc.* v. *Halliburton Co., et al.*

3,239,074, Pullman, Inc., RAILWAY CAR UNCOUPLING DEVICES, **filed** Dec. 23, 1981, D.C., N.D. Ill. (Chicago), Doc. 81 C 7188, *Nordek Corp.* v. *Garbe Iron Works, Inc., et al.* Defendant's motion for summary judgment is granted. Case is dismissed. Dec. 16, 1982.

3,262,294. (See 3,033,143.)

3,264,854. (See 3,033,143.)

3,277,642, Alec W. Niconchuk, TIRE REPAIR UNITS, **filed** Feb. 8, 1983, D.C. Mass. (Boston), Doc. 83-0337-C, *North Shore Laboratories Corp.* v. *Myers Tire Supply Co.*

3,283,918, Unimation, Inc., COORDINATED CONVEYOR AND PROGRAMMED APPARATUS; **3,306,442, same,** MULTI-PROGRAM APPARATUS; **3,306,471, same,** PROGRAMMED APPARATUS, **filed** July 29, 1981, D.C., W.D. Mich. (Grand Rapids), Doc. K81-282CA4, *Unimation, Inc.* v. *Prab Robots, Inc.* Order of dismissal of complaint and counterclaim with prejudice and without costs filed Jan. 26, 1983.

3,290,919. (See 3,033,143.)

3,301,410. (See 3,233,747.)

3,306,442. (See 3,283,918.)

3,306,471. (See 3,283,918.)

3,319,515, E. I. Du Pont de Nemours & Co., INTERFEROMETRIC OPTICAL PHASE DISCRIMINATION APPARATUS, **filed** June 22, 1981, D.C., N.D. Calif. (San Francisco), Doc. 81-2553 SAW, *Bio-Rad Laboratories, Inc.* v. *Nicolet Instrument Corp.* Judgment filed Jan. 18, 1983.

3,353,388. (See 3,033,143.)

3,380,447, Robert M. Martin, ANKLE DEVICE FOR SUPPORTING AN INDIVIDUAL IN AN INVERTED POSITION, **filed** Dec. 23, 1982, D.C. Minn. (Minneapolis), Doc. 4-82 Civil 1667, *Gravity Guidance, Inc.* v. *Ronald F. Weseman, et al.* **Same, filed** Feb. 14, 1983, D.C., S.D.N.Y., Doc. 83-CIV-1123 LBS, *Beacon Enterprises, Inc.* v. *Gravity Guidance, Inc.*

3,385,103, John P. Wilkerson, PIPE LEAK INDICATING APPARATUS, **filed** Dec. 30, 1982, D.C., E.D. La. (New Orleans), Doc. 82-6001, *Loomis International, Inc.* v. *Damco Testers, Inc.* **Same, filed** Jan. 25, 1983, D.C., E.D. Tex. (Tyler), Doc. TY-83-30-CA, *Loomis International, Inc.* v. *Dyna Test, Inc.*

3,398,940, Basil A. Kosarin, AIR HEATING APPARATUS, **filed** Dec. 20, 1982, D.C. Minn. (Minneapolis), Doc. 4-82 Civil 1658, *Rupp Industries, Inc.* v. *Rapid Engineering, Inc.*

3,422,695, Wilson and Wilson, CHART DRIVE MECHANISM, **filed** Feb. 1, 1983, D.C., N.D. Tex. (Dallas), Doc. CA3-83-0180 C, *Reynolds Equipment Co.* v. *Chromalloy American Corp., doing business as Meter Service & Supply Co.*

3,430,473. (See 3,033,143.)

3,451,561. (See 3,233,747.)

3,463,328. (See 3,233,747.)

3,477,428, Glenn F. Hare, COMBINED SPLINT AND TRACTION DEVICE, **filed** Nov. 13, 1981, D.C., W.D. Pa. (Pittsburgh), Doc. 81-2038, *Conaway Enterprises, Inc.* v. *Dyna Industries, Inc.* Case transferred to the U.S. District Court for the Southern District of Calif. for further proceedings on Oct. 14, 1982.

3,487,800, Windsurfing International, Inc., WIND-PROPELLED APPARATUS, **filed** Sept. 17, 1980, D.C., S.D.N.Y., Doc. 80-CIV-5290, *Windsurfing International, Inc.* v. *Sailrider, Inc.* **Same, filed** Jan. 16, 1981, D.C., S.D.N.Y., Doc. 81-CIV-0254, *Windsurfing International, Inc.* v. *Fred Ostermann GmbH.* **Same, filed** Feb. 24, 1981, D.C., S.D. Fla. (Miami), Doc. 81-0387-CIV-SMA, *Windsurfing International, Inc.* v. *B.V.A.A., Inc., et al.* **Same, filed** Mar. 18, 1981, D.C. Nev. (Las Vegas), Doc. CV-LV-81-122 HEC, *Windsurfing International, Inc.* v. *Curtis Funsurf, Inc., et al.* **Same, filed** Mar. 4, 1983, D.C., S.D.N.Y., Doc. 83-CIV-1691 (CSH), *AMF, Inc.* v. *Windsurfing International, Inc.*

3,494,297, Plasser and Theurer, MOBILE TRACK MAINTENANCE MACHINE; **4,066,020,** Josef Theurer, MOBILE TRACK TAMPING AND TRACK POSITION CORRECTION MACHINE, **filed** July 19, 1982, D.C. Del. (Wilmington), Doc. 82-459, *Jackson Jordan, Inc.* v. *Plasser American Corp.* Case transferred to D.C., E.D. Va. (Norfolk) and given Doc. No. 82-825-N. Stipulated Order of Dismissal filed Feb. 23, 1983.

3,515,792, Allen Organ Co., DIGITAL ORGAN; **3,610,799, same,** MULTIPLEXING SYSTEM FOR SELECTION OF NOTES AND VOICES IN AN ELECTRONIC MUSICAL INSTRUMENT; **3,610,806, same,** ADAPTIVE SUSTAIN SYSTEM FOR DIGITAL ELECTRONIC ORGAN; **3,639,913, same,** METHOD AND APPARATUS FOR ADDRESSING A MEMORY AT SELECTIVELY CONTROLLED RATES; **3,743,755, same,** METHOD AND APPARATUS FOR ADDRESSING A MEMORY AT SELECTIVELY CONTROLLED RATES, **filed** Jan. 18, 1983, D.C., E.D. Pa. (Philadelphia), Doc. 83-276, *Allen Organ Co.* v. *Kawai Musical Instruments Mfg. Co., Ltd., also known as Kabushiki Kaisha Kawai Gakki Seisakusho.*

3,516,692, Allied Piping Products Co., Inc. BRANCH PIPE CONNECTION, **filed** Dec. 7, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82 6376, *Allied Piping Products Co., Inc.* v. *All Points Traders, Inc., et al.*

3,531,966. **(See 3,033,143.)**

3,537,091, Dickey-John Corp., SEED MONITORING SYSTEM; **3,723,989, same,** ELECTRONIC PLANTER MONITOR; **3,928,751, same,** SEED POPULATION MONITOR; **3,974,377, same,** SOLID STATE SEED SENSOR; **4,009,799, same,** MONITOR FOR SEED PLANTING APPARATUS, **filed** May 11, 1977, D.C., N.D. Ill (Chicago), Doc. 77 C 1680, *Dickey-John Corp.* v. *Rich-way Sales, et al.* Consent Judgment filed Sept. 18, 1980.

3,542,198, Olov Birger Borjeson, FILTER UNIT FOR FIBROUS AND SIMILAR MATERIALS, **filed** July 13, 1982, D.C., N.D. Ill. (Chicago), Doc. 82 C 4329, *Nycor Corp.* v. *Dontech, Inc., et al.* Enter Order dated Aug. 30, 1982.

3,545,241. **(See 3,033,143.)**

3,552,469, B & J Mfg. Co., TIRE BEAD SEATER; **3,675,705, same,** TIRE BEAD SEATING AND INFLATION APPARATUS; **3,805,871, same,** TIRE MOUNTING, BEAD SEATING AND INFLATION APPARATUS AND METHOD OF USE, **filed** Sept. 22, 1975, D.C., N.D. Ill. (Chicago), Doc. 75 C 3150, *B & J Mfg. Co.* v. *Robert A. Hill, et al.* Cause dismissed, each party to bear its own costs, per order dated Sept. 10, 1979.

3,552,469, B & J Mfg. Co., TIRE BEAD SEATER, **filed** July 20, 1982, D.C., N.D. Ill. (Chicago), Doc. 82 C 4503, *B & J Mfg. Co.* v. *Sears, Roebuck & Co.* **Same, filed** July 20, 1982, D.C., N.D. Ill. (Chicago), Doc. 82 C 4504, *B & J Mfg. Co.* v. *Standard Oil Co.* **Same, filed** July 20, 1982, D.C., N.D. Ill. (Chicago), Doc. 82 C 4505, *B & J Mfg. Co.* v. *Montgomery Ward & Co.*

3,567,117, Hedco, Inc., ICE NUCLEI FORMATION; **3,703,991, same,** SNOW PRECIPITATOR; **3,733,029, same,** SNOW PRECIPITATOR, **filed** Oct. 19, 1981, D.C., N.D.N.Y. (Utica), Doc. 81-CV-1139, *The Dewey Electronics Corp.* v. *Titus Mountain, Inc.* Stipulated dismissal without prejudice filed Jan. 18, 1983. **Same, filed** Oct. 9, 1981, D.C., E.D. Wash. (Spokane), Doc. C-81-616-JLQ, *The Dewey Electronics Corp.* v. *Mt. Spokane Skiing Corp., et al.* Stipulated dismissal without prejudice filed Jan. 31, 1983.

3,568,855. **(See 3,233,747.)**

3,589,527. **(See 3,233,747.)**

3,589,528. **(See 3,233,747.)**

3,593,782, Draves, Garrison and Skiba, HEAT EXCHANGER, **filed** Mar. 18, 1982, D.C., N.D. Okla. (Tulsa), Doc. 82-C-344-C, *Bas-Tex Corp.* v. *Smithco Engineering, Inc.* U.S. Pat. No. 3,593,782 found to be valid, per Consent Decree & Dismissal filed Dec. 17, 1982.

3,598,249. **(See 3,233,747.)**

3,610,799. **(See 3,515,792.)**

3,610,806. **(See 3,515,792.)**

3,611,035, Minnesota Mining & Mfg. Co., GROUND FAULT PROTECTIVE SYSTEM HAVING GROUNDED NEUTRAL PROTECTION; **3,813,579, same,** ELECTRIC RECEPTACLE ASSEMBLY WITH GROUND FAULT PROTECTION; **3,836,821, same,** GROUND FAULT PROTECTIVE SYSTEM, **filed** Mar. 23, 1977, D.C., N.D. Ill. (Chicago), Doc. 77 C 972, *Minnesota Mining & Mfg. Co.* v. *Fresen Associates Co., et al.* Consent Decree filed Sept. 26, 1980. **Same, filed** Jan. 14, 1982, D.C., N.D. Ill. (Chicago), Doc. 82 C 227, *Minnesota Mining & Mfg. Co.* v. *Crouse Hinds Co.*

3,639,913. **(See 3,515,792.)**

3,646,317, Leonard Osrow, HAND STEAMING DEVICE; **3,755,649, same,** SEWING STEAMER; **4,206,340,** Osrow and Le Baigue, ELECTROLYTICALLY HEATED FABRIC STEAMING DEVICE HAVING SELECTIVELY VARIABLE STEAM GENERATION AND DISTRIBUTION; **Re. 28,418,** Leonard Osrow, HAND STEAMER WITH IRONING SOLE, **filed** Feb. 18, 1983, D.C., S.D.N.Y., Doc. 83-CIV-1334 ADS, *Osrow Products Corp.* v. *Sutton Emport-Export Corp., et al.*

3,646,748, Frederic A. Lang, TENDONS FOR PRESTRESSED CONCRETE AND PROCESS FOR MAKING SUCH TENDONS, **filed** Sept. 27, 1982, D.C., N.D. Tex. (Dallas), Doc. CA3-82-1579R, *Frederic A. Lang* v. *Stress Tech. Inc.* **Same, filed** Sept. 27, 1982, D.C., N.D. Tex. (Dallas), Doc. CA3-82-1580R, *Frederic A. Lang* v. *Post-Tensioned Systems, Inc.* **Same, filed** Oct. 26, 1982, D.C., S.D. Tex. (Houston), Doc. H-82-3194, *Frederic A. Lang* v. *R.N.R. Mfg., Inc.* **Same, filed** Oct. 26, 1982, D.C., S.D. Tex. (Houston), Doc. H-82-3195, *Frederic A. Lang* v. *Post Tension Associated, Inc.* **Same, filed** Oct. 26, 1982, D.C., S.D. Tex. (Houston), Doc. H-82-3196, *Frederic A. Lang* v. *Southwest Foundation Supply.* **Same, filed** Nov. 5, 1982, D.C., S.D. Tex. (Houston), Doc. H-82-3328, *Frederic A. Lang* v. *SRP Corp.* **Same, filed** Nov. 5, 1982, D.C., S.D. Tex. (Houston), Doc. H-82-3329, *Frederic A. Lang* v. *PTCR Corp.* **Same, filed** Nov. 5, 1982, D.C., S.D. Tex. (Houston), Doc. H-82-3330, *Frederic A. Lang* v. *Cable-Slabs, Inc.* **Same, filed** Nov. 16, 1982, D.C., S.D. Tex. (Brownsville), Doc. B-82-308, *Frederic A. Lang* v. *Texas Building Systems, Inc.* **Same, filed** Jan. 13, 1983, D.C., S.D. Fla. (Miami), Doc. 83-0074-CIV-EPS, *Frederic A. Lang* v. *Post Tensioned Engineering, Inc.* **Same, filed** Jan. 18, 1983, D.C., N.D. Ill. (Chicago), Doc. 83 C 0338, *Frederic A. Lang* v. *Amysco, Inc.* **Same, filed** Feb. 1, 1983, D.C., N.D. Calif.

(San Francisco), Doc. C83-0422 RHS, *Land* v. *CES Systems, Inc.*

3,647,088. (See 3,233,747.)

3,649,532, John O. McLean, METHOD OF TREATING WATER, **filed** Jan. 7, 1983, D.C., S.D. Ohio (Columbus), Doc. C-2-83-70, *Chemical Engineering Corp.* v. *William R. Hague, Inc.* **Same, filed** Jan. 14, 1983, D.C., E.D. Pa. (Philadelphia), Doc. 83-0236, *Chemical Engineering Corp. and John O. McLean* v. *Master Water Conditioning.*

3,658,710, Puckorius and Zimmie, METHOD OF REMOVING TUBERCLES USING ORGANIC POLYMERS AND SILICA AND/OR CHROMIUM COMPOUNDS; **4,184,991,** Clarence Scheurman, III, CORROSION INHIBITING COMPOSITION FOR FERROUS METALS AND METHOD OF TREATING WITH SAME, **filed** Feb. 14, 1983, D.C., M.D. La. (Baton Rouge), Doc. 83-145, *Wright Chemical Corp.* v. *William Brice Johnson, et al.*

3,675,705. (See 3,552,469.)

3,685,217, Belanger, Inc., ROTARY FINISHING WHEEL OR TOOL; **3,807,099, same; 3,820,291, same,** REPLACEABLE HINGE TYPE ABRASIVE UNITS OR PACKS FOR CYLINDRICAL HUB STRUCTURES; **3,846,942, same,** ROTARY FINISHING WHEELS, **filed** Mar. 16, 1982, D.C., E.D. Mich. (Detroit), Doc. 82-70926, *Belanger, Inc.* v. *Formax Mfg. Corp.* Plaintiff owns Pat. Nos. 3,685,217, 3,807,099, 3,820,291 and 3,846,942 which are good and valid in law. Defendant is permanently enjoined from further infringing Plaintiff's patents. Filed Jan. 27, 1983.

3,703,991. (See 3,567,117.)

3,723,989. (See 3,537,091.)

3,733,029. (See 3,567,117.)

3,736,584, Pittway Corp., MOTION DETECTOR AND INTRUDER ALARM SYSTEM, **filed** Jan. 26, 1977, D.C., N.D. Ill. (Chicago), Doc. 77 C 286, *Pittway Corp.* v. *Detection Systems, Inc., et al.* Action dismissed without prejudice, per order dated Oct. 4, 1982.

3,743,755. (See 3,515,792.)

3,752,329. (See 3,233,747.)

3,755,649. (See 3,646,317.)

3,755,908, T. D. Williamson, Inc., PIPELINE PIG, **filed** Jan. 24, 1983, D.C., N.D. Okla. (Tulsa), Doc. 83-C-0084-C, *T. D. Williamson, Inc.* v. *Dwane Odell Laymon, doing business as Electronic Pipeline Specialties.*

3,760,954. (See 3,233,747.)

3,764,527, Minnesota Mining and Mfg. Co., METHOD FOR SEPARATING OIL FROM WATER, **filed** Feb. 28, 1983, D.C., S.D. Tex. (Houston), Doc. H-83-1530, *Minnesota Mining and Mfg. Co.* v. *Ergon, Inc., et al.*

3,788,034, Hartness and Hartness, GRID SET FOR AN ARTICLE LOADING MACHINE; **3,911,647, same,** POSITIONING ARM FOR CASE LOADER, **filed** Mar. 2, 1983, D.C., W.D. Va. (Lynchburg), Doc. 83-0028-L, *Hartness International, Inc.* v. *Simplimatic Engineering Co.*

3,791,534. (See 3,233,747.)

3,794,917, Joseph A. Martin, ELECTRONIC WATT TRANSDUCER; **3,971,979,** Glenn A. Mayfield, CURRENT/VOLTAGE TRANSDUCER; **4,055,804,** Glenn A. Mayfield, WATT/WATTHOUR TRANSDUCER AND AMPLIFIER-FILTER THEREFOR, **filed** Jan. 21, 1983, D.C., S.D. Ohio (Columbus), Doc. C-2-83-142, *Scientific Columbus, Inc.* v. *Square D. Co.*

3,805,759, Brunswick Corp., IGNITION SYSTEM WITH ADVANCE STABILIZING MEANS; **3,967,446, same,** EXHAUST RELIEF SILENCING APPARATUS FOR MARINE PROPULSION SYSTEMS; **4,088,108, same,** MULTIPLE CAPACITOR MEANS IGNITION SYSTEM, **filed,** May 28, 1982, D.C., E.D. Wis. (Milwaukee), Doc. 82-C-0654, *Brunswick Corp.* v. *Suzuki Motor Co., Ltd.*

3,805,871. (See 3,552,469.)

3,807,099. (See 3,685,217.)

3,808,943, Larry Kelly, GUN-LEVELING DEVICE; **Reg. No. 1,024,887** (MAG-NA-PORT), Mag-Na-Port Arms, Inc., **filed** Jan. 28, 1983, D.C., S.D. Fla. (Ft.Lauderdale), Doc. 83-8052-Civ-NCR, *Mag-Na-Port Arms, Inc.* v. *The Gun Shop.*

3,810,274, Slimfold Mfg. Co., Inc., PIVOT AND GUIDE ROD ASSEMBLY FOR BI-FOLD DOOR, **filed** Jan. 5, 1983, D.C., N.D. Ga. (Atlanta), Doc. C83-0013, *Slimfold Mfg. Co., Inc.* v. *Floataway Home Products, Inc.*

3,812,933, Helmut Darda, ENERGY STORING DRIVE MEANS; **3,981,098, same,** TOY VEHICLE WITH COMPONENT FOR STORING ENERGY IN RESPONSE TO MOTION IN OPPOSITE DIRECTIONS, **filed** Feb. 11, 1983, D.C., S.D. Fla. (Miami), Doc. 83-353-CIV-SMA, *Darda, Inc. U.S.A., doing business as Darda Toy Co.* v. *Majorette Toys (U.S.), Inc., et al.*

3,813,579. (See 3,611,035.)

3,820,291. (See 3,685,217.)

3,836,821. (See 3,611,035.)

3,840,071, C. Jim Stewart & Stevenson, Inc., UNDERWATER CONNECTOR FOR WELLHEADS, **filed** Mar. 11, 1983, D.C., S.D. Tex. (Houston), Doc. H-83-1849, *NL Industries* v. *Koomey, Inc.*

3,846,942. (See 3,685,217.)

3,873,087, General Mills Fun Group, Inc., OCCUPANT PROPELLED ROTARY AMUSEMENT DEVICE; **D. 233,899, same,** ROTARY AMUSEMENT DEVICE, **filed** Feb. 15, 1983, D.C., S.D.N.Y., Doc. 83-CIV-1181 CSH, *CPG Products Corp.* v. *Hasbro Industries, Inc.*

3,888,358. (See 3,233,747.)

3,889,305, Nassau Tape & Webbing Mills, Inc., HEAT BARRIER TEXTILE MATERIAL, **filed** Dec. 30, 1983, D.C.N.J. (Newark), Doc. 82-4430, *Nassau Tape & Webbing Mills, Inc.* v. *Advanced Thread Corp., et al.*

3,899,415, Codding and King, SORTING MACHINE WITH DIGITAL ERROR CORRECTION; **3,914,601,** Hoover and Long, COMPACT VIEWING ASSEMBLY FOR LIGHT SENSITIVE SORTING MACHINE, **filed** Dec. 17, 1982, D.C., S.D. Tex. (Houston), Doc. H-82-3837, *Geosource, Inc.* v. *Elias H. Codding, et al.* **Same, filed** Dec. 15, 1982, D.C., S.D. Tex. (Houston), Doc. H-82-3800, *Geosource, Inc.* v. *Elias H. Codding, et al.* Plaintiff dismisses above-identified case without prejudice on Dec. 21, 1982.

3,911,647. (See 3,788,034.)

3,914,601. (See 3,899,415.)

3,917,361, Reed Tool Co., FRICTION BEARING, **filed** Dec. 22, 1982, D.C., S.D. Tex. (Houston), Doc. H-82-3877, *Reed Rock Bit Co.* v. *Smith International, Inc., et al.*

3,928,751. (See 3,537,091.)

3,929,051, Norlin Industries, Inc., MULTIPLEX HARMONY GENERATOR, **filed** June 30, 1978, D.C., N.D. Ill. (Chicago), Doc. 78 C 2620, *Norlin Industries, Inc.* v. *The Wurlitzer Co.* Case closed on Feb. 10, 1983.

3,946,242, Allan W. Wilkerson, GEOPHYSICAL ENERGY SOURCE UTILIZATION CIRCUIT, **filed**

Dec. 30, 1982, D.C. Minn. (Minneapolis), Doc. 4-82 Civil 1676, *Windworks, Inc.* v. *Jacobs Wind Electric Co.*

3,946,788, Verosol B.V., FOLDABLE CURTAIN SCREEN OR BLIND CONSTRUCTION AND A METHOD FOR PRODUCING A CURTAIN BLIND CONSTRUCTION, **filed** Dec. 23, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82 6743, *Verosol B.V.* v. *Shades II, Inc.*

3,948,680, Gould, Inc., LEAD-ACID STORAGE BATTERY CAPABLE OF ACTIVATION BY THE ADDITION OF ELECTROLYTE; **3,988,165, same,** METHOD OF MAKING A LEAD-ACID STORAGE BATTERY, AND CELL, CAPABLE OF ACTIVATION BY THE ADDITION OF ELECTROLYTE, **filed** Mar. 1, 1977, D.C. Del. (Wilmington), Doc. 77-73, *Gould, Inc.* v. *Northwest Industries, Inc., et al.* Stipulation and Order dismissing action with prejudice filed Dec. 28, 1982.

3,948,680, Gould, Inc., LEAD-ACID STORAGE BATTERY CAPABLE OF ACTIVATION BY THE ADDITION OF ELECTROLYTE, **filed** May 6, 1976, D.C. Del. (Wilmington), Doc. 76-162, *General Battery* v. *Gould, Inc.* Stipulation and Order dismissing action with prejudice filed Dec. 28, 1982.

3,967,446. (See 3,805,759.)

3,971,979. (See 3,794,917.)

3,974,377. (See 3,537,091.)

3,977,405, Shozaburo Yanase, BREAST PUMP, **filed** Mar. 7, 1983, D.C., S.D.N.Y., Doc. 83-CIV-1746 LPG, *Marshall Electronics, Inc.* v. *D. J. Colgate Medical, Ltd.*

3,981,098. (See 3,812,933.)

3,988,165. (See 3,948,680.)

4,009,799. (See 3,537,091.)

4,010,824, Edward F. Bavis, CONVEYOR SYSTEM FOR DRIVE-IN BANKS AND THE LIKE, **filed** Feb. 11, 1983, D.C., N.D. Iowa (Cedar Rapids), Doc. C 83-22, *Kidde, Inc.* v. *E. F. Bavis Associates and Edward F. Bavis.*

4,013,395, Wingaersheek, Inc., AERODYNAMIC FUEL COMBUSTOR, **filed** Nov. 25, 1981, D.C., N.D. Ill. (Chicago), Doc. 81 C 6617, *Wingaersheek Div. of Victor Equipment Co.* v. *Super Ego Tool, et al.*

4,055,804. (See 3,794,917.)

4,066,020. (See 3,494,297.)

4,072,200, Morris, Waters and Roberts, SURVEYING OF SUBTERRANEAN MAGNETIC BODIES FROM AN ADJACENT OFF-VERTICAL BOREHOLE, **filed** Feb. 7, 1983, D.C., S.D. Tex. (Houston), Doc. H-83-968, *Houston Oil & Minerals Corp.* v. *SEEC, Inc.*

4,074,803, Ture Eric Kollberg, SCREW CONVEYOR HAVING STOPPER BAR MEANS, **filed** Mar. 11, 1983, D.C., N.D. Ind. (Fort Wayne), Doc. F 83-0088, *Sunds Defibrator, Inc.* v. *Bahr Bros. Mfg., Inc.*

4,088,108. (See 3,805,759.)

4,090,380, Eric L. Bianco, DETACHABLE KEY SECURITY ASSEMBLY, **filed** Mar. 2, 1983, D.C.N.J. (Newark), Doc. 83-715, *Key Valet, Inc.* v. *Edison Parking Corp., et al.*

4,182,534, David M. Snyder, DIRECTIONAL CONTROL VALVE SYSTEM, **filed** Feb. 2, 1983, D.C., E.D. Va. (Alexandria), Doc. 83-0135-A, *Muncie Power Products, Inc.* v. *Dana Corp.*

4,183,057, ACS Hospital Systems, Inc., ACTUATING SYSTEM FOR A RENTAL TELEVISION, **filed** Oct. 1, 1982, D.C., W.D. Pa. (Pittsburgh), Doc. 82-2044, *ACS Hospital Systems, Inc.* v. *Wells National Services Corp.*

4,184,991. (See 3,658,710.)

4,195,330, John M. Savage, Jr., LENS CLIP AND CAP FOR LED OR LIGHT UNIT ASSEMBLY, **filed** Nov. 12, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82 5845, *Visual Communications Co., Inc.* v. *Data Display Products, et al.*

4,206,340. (See 3,646,317.)

4,207,060, Ludger Zangs, VESSEL FOR METAL SMELTING FURNACE, **filed** Jan. 19, 1983, D.C. Del. (Wilmington), Doc. 83-24, *Mannesmann Demag Corp.* v. *Engineered Metal Products Co., Inc.*

4,238,818, Alvin Gindel, NONROTATABLE TELESCOPING SUPPORTING STRUCTURE, **filed** Dec. 13, 1982, D.C., S.D.N.Y., Doc. 82-CIV-8266 CES, *Alsy Mfg., Inc.* v. *Plymouth Harlee, Inc.*

4,240,729, Howard Hunter Barney, MULTIPLE IMAGE CAMERA, **filed** Apr. 2, 1981, D.C., N.D. Calif. (San Francisco), Doc. C-81-1387-MHP, *Dunn Systems, Inc.* v. *Matrix Instruments.*

4,252,597, James M. Monroe, SPLICING MACHINE AND METHOD, **filed** Jan. 13, 1983, D.C. Md. (Baltimore), Doc. B-13-117, *Computer Forms Recycling, Inc.* v. *Leonard Blondes, etc., et al.*

4,275,782, Richard B. McFarlane, PNEUMATIC TIRE INSERTS, **filed** June 22, 1982, D.C. Colo. (Denver), Doc. 82 K 1033, *International Innertire, Inc.* v. *Richard B. McFarlane.* This action transferred to D.C., E.D. Calif. (Fresno) on Oct. 18, 1982 and assigned Doc. No. CV F-82-403-EDP. Stipulation of the parties, and order of the court, dismissed action without prejudice on Feb. 24, 1983.

4,278,080, Under Sea Industries, Inc., DIVING SNORKEL, **filed** Dec. 8, 1982, D.C., N.D. Ill. (Chicago), Doc. 82C7509, *Under Sea Industries, Inc.* v. *Ducor Corp.*

4,298,601, Alan N. Howard, METHOD AND FORMULATIONS FOR THE TREATMENT OF OBESITY, **filed** Nov. 16, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82 5929, *Cambridge Plan International* v. *Continental Vitamin Co., Inc.* **Same, filed** Nov. 16, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82 5930, *Cambridge Plan International* v. *Vita Fresh Vitamin Co., Inc.* **Same, filed** Nov. 16, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82 5931, *Cambridge Plan International* v. *Frank Mackey, et al.* **Same, filed** Nov. 29, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82 6154, *Cambridge Plan International* v. *Naturade Products, Inc.* **Same, filed** Dec. 27, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82 6763, *Cambridge Plan International* v. *Leo Daboub.* **Same, filed** Jan. 10, 1983, D.C., C.D. Calif. (Los Angeles), Doc. 83 0147, *Cambridge Plan International* v. *John Gorman, Jr.* **Same, filed** Jan. 12, 1983, D.C., N.D. Calif. (San Francisco), Doc. C-83-0157 TEH, *Cambridge Plan International* v. *Stanford International, Inc., et al.* **Same, filed** Jan. 17, 1983, D.C., C.D. Calif. (Los Angeles), Doc. 83-0292, *Cambridge Plan International* v. *Bio-Plus International, Inc.* **Same, filed** Jan. 19, 1983, D.C., C.D. Calif. (Los Angeles), Doc. 83 0338, *Cambridge Plan International* v. *Richard Orkand.* **Same, filed** Jan. 27, 1983, D.C., E.D. Mich. (Detroit), Doc. 83CV0324DT, *Cambridge Plan International* v. *Michigan Pharmacal Corp.* **Same, filed** Jan. 31, 1983, D.C. Ore. (Portland), Doc. 83-148, *Cambridge Plan International* v. *Hall Laboratories, Inc., also known as Westridge Laboratories.* **Same, filed** Feb. 2, 1983, D.C., S.D. Calif. (San Diego), Doc. 83-0278, *Cambridge Plan International* v. *Ultra Drug Co.* **Same, filed** Nov. 8, 1982, D.C. Del. (Wilmington), Doc. 82-725, *Cambridge Plan International* v. *Forever Slender, Inc.* Pat. No. 4,298,601 is valid. The Forever Slender Diet used, manufactured and sold by defendant infringes the Patent. Judgment filed Mar. 2, 1983. **Same, filed** Mar. 15, 1983, D.C., N.D. Calif. (San Francisco), Doc.

C-83-1254 MHP, *Cambridge Plan International* v. *Hall Laboratories, Inc., also known as Westridge Laboratories.*

4,302,162, Jefferson Springston, WATER PUMPING DEVICE, **filed** Dec. 17, 1982, D.C., S.D.N.Y., Doc. 82-CIV-8414, *The Power House, Inc.* v. *Offshore Horizons.*

4,307, 969, James Daughters, UNIVERSAL RIBBON CARTRIDGE, **filed** May 7, 1982, D.C., N.D. Calif. (San Francisco), Doc. C82 2097 EFL, *Wordex Corp.* v. *Diablo Systems, Inc.* Order of Dismissal with prejudice upon settlement of case filed Jan. 10, 1983.

4,310,343, William J. Verdegaal, PROCESS FOR MAKING LIQUID FERTILIZER, **filed** Feb. 23, 1983, D.C., E.D. Calif. (Fresno), Doc. CV-F-83-68-REC, *Verdegaal Brothers, Inc.* v. *Union Oil Co. of Calif.*

4,356,645, Hine and Mathis, VARIABLE WING PLOW BLADE AND MOUNTING STRUCTURE THEREFOR, **filed** Feb. 2, 1983, D.C. Nev. (Reno), Doc. CV-R-82-387-ECR, *Logan Mfg. Co.* v. *Valley Engineering, Inc.*

4,366,730, Roberto Casadio, WIRE STRIPPING PLIERS, **filed** Feb. 18, 1983, D.C., E.D. La. (New Orleans), Doc. 83-720 "E" *Creative Pioneer Products Corp.* v. *Hogan's Hardware, Inc.* **Same, filed** Mar. 3, 1983, D.C. Dist. of Columbia (Wash. D.C.), Doc. 83-0625, *Cable Electric Products, Inc.* v. *Roberto Casadio.* **Same, filed** Mar. 16, 1983, D.C., E.D. La. (New Orleans), Doc. 83-1258, *Creative Pioneer Products Corp.* v. *Stratton-Baldwin Co., Inc.*

Re. 28,418. (See 3,646,317.)

Re. 30,912, Warren D. Hancock, STENT FOR HEART VALVE, **filed** Dec. 6, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82 6341, *American Hospital Supply Corp.* v. *Extracorporeal Medical Specialties, Inc.* **Same, filed** Dec. 8, 1982, D.C., N.D. Ill. (Chicago), Doc. 82 C 7515, *Extracorporeal Medical Specialties, Inc.* v. *American Hospital Supply Corp.*

D. 233,899. (See 3,873,087.)

D. 264,235, Jose L. B. Chirapozu, BICYCLE EXERCISER, **filed** Jan. 21, 1983, D.C., N.D. Ill. (Chicago), Doc. 83 C 0448, *Merchants Corp. of America, et al.* v. *Spiegel, Inc., et al.*

Errata

In the Official Gazette of July 20, 1982, under "Trademark Registrations Issued—Principal Register—Section 1.—International Classification," on page TM420, the following should be deleted:

1,201,655. RECTORSEEK. The RectorSeal Corp., (U.S. Cl. 6). SN 289,958. Pub. Apr. 27, 1982. Filed Dec. 16, 1980.

The following should be inserted in its place:

1,201,685. Withdrawn.

MARK NEWMAN,
Apr. 15, 1983. *Director, Trademark Examining Operation.*

Errata

In the Official Gazette of July 20, 1982, under "Trademark Registrations Issued—Principal Register—Section 1.—International Classification," on page TM420, the following should be deleted:

1,201,687. Withdrawn.

The following should be inserted in its place:

1,201,687. ACCOAL-FROTH. American Cyanamid Co., (U.S. Cl. 6). SN 314,459. Pub. Apr. 27, 1982. Filed June 12, 1981.

MARK NEWMAN,
Apr. 15, 1983. *Director, Trademark Examining Operation.*

Errata

In the Official Gazette of Mar. 29, 1983, under "TRADEMARK REGISTRATIONS—NEW CERTIFICATES," on page TM798, the following registration should be deleted:

562,490. LAZY DAZY AND DESIGN. (U.S. Cl. 22). Lazy Ike Bait Co., Preston, Minn. Reg. Aug. 5, 1952. New Cert. Sec. 7(c) to Lindy-Little Joe, Inc., Isle, Minn.

The following should be inserted:

562,490. LAZY DAZY AND DESIGN. (U.S. Cl. 22). Lazy Ike Bait Co., Preston, Minn. Reg. Aug. 5, 1952. New Cert. Sec. 7(c) to Lindy-Little Joe, Inc., Brainerd, Minn.

MARK NEWMAN,
Apr. 8, 1983. *Director, Trademark Examining Operation.*

The following registration numbers, listed in the "Trademarks Registrations Issued" section of the Official Gazette of Mar. 22, 1983, were inadvertently issued:

TMOG Mar. 22, 1983

1,231,565
1,231,866
1,231,985

Consequently, the certificates of registration bearing the above-identified numbers were not issued on the date indicated, and these registration numbers have been vacated.

MARK M. NEWMAN,
Apr. 8, 1983. *Director, Trademark Examining Operation.*

PATENT NOTICES

Certificates of Correction for the Week of May 17, 1983

Re. 31,104	4,347,968	4,362,708	4,370,768
D. 263,983	4,347,999	4,363,191	4,371,186
4,049,692	4,348,515	4,363,925	4,371,187
4,050,206	4,349,609	4,364,115	4,371,272
4,101,595	4,349,664	4,364,299	4,371,744
4,220,489	4,350,028	4,364,492	4,371,776
4,269,950	4,351,671	4,364,855	4,371,870
4,275,581	4,353,271	4,364,872	4,372,030
4,282,152	4,353,448	4,364,923	4,372,215
4,303,676	4,353,614	4,366,482	4,372,884
4,306,075	4,354,352	4,366,559	4,373,154
4,310,359	4,354,413	4,366,874	4,373,486
4,314,002	4,354,585	4,367,077	4,373,522
4,314,278	4,355,208	4,367,538	4,374,000
4,319,927	4,355,984	4,367,987	4,374,158
4,320,463	4,356,001	4,367,990	4,374,642
4,326,065	4,356,082	4,368,114	4,374,821
4,330,122	4,356,142	4,368,255	4,374,982
4,330,140	4,357,282	4,368,433	4,374,984
4,335,669	4,358,395	4,368,706	4,375,941
4,337,089	4,358,587	4,368,864	4,375,971
4,338,244	4,359,284	4,369,855	4,375,972
4,341,274	4,359,400	4,369,912	4,377,436
4,342,658	4,359,458	4,370,344	4,377,563
4,343,558	4,359,461	4,370,347	4,377,586
4,343,961	4,360,323	4,370,392	4,377,680
4,345,088	4,361,432	4,370,488	4,377,701
4,346,151	4,361,484	4,370,593	
4,346,622	4,361,794	4,370,613	

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Depending upon the library, the patents may be available in microfilm, in bound volumes of paper copies, or in some combination of both. Facilities for making paper copies from either microfilm in reader-printers or from the bound volumes in paper-to-paper copies are generally provided for a fee.

Owing to variations in the scope of patent collections among the patent depository libraries and in their hours of service to the public, anyone contemplating use of the patents at a particular library is advised to contact that library, in advance, about its collection and hours, so as to avert possible inconvenience.

State	*Name of Library*	*Telephone Contact*
Alabama	Birmingham Public Library	(205) 254-2555
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California	Los Angeles Public Library	(213) 626-7555 Ext. 273
	Sacramento: California State Library	(916) 322-4572
	Sunnyvale: Patent Information Clearinghouse*	(408) 738-5580
Colorado	Denver Public Library	(303) 571-2122
Delaware	Newark: University of Delaware	(302) 738-2238
Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4508
Illinois	Chicago Public Library	(312) 269-2865
Louisiana	Baton Rouge: Troy H. Middleton Library, Louisiana State University	(504) 388-2570
Massachusetts	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Detroit Public Library	(313) 833-1450
Minnesota	Minneapolis Public Library & Information Center	(612) 372-6552
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 214, Ext. 215
Nebraska	Lincoln: University of Nebraska-Lincoln, Engineering Library	(402) 472-3411
New Hampshire	Durham: University of New Hampshire Library	(603) 862-1777
New Jersey	Newark Public Library	(201) 733-7814
New York	Albany: New York State Library	(518) 474-5125
	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
	New York Public Library (The Research Libraries)	(212) 930-0850
North Carolina	Raleigh: D. H. Hill Library, N.C. State University	(919) 737-3280
Ohio	Cincinnati & Hamilton County, Public Library of	(513) 369-6936
	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 422-6286
	Toledo/Lucas County Public Library	(419) 255-7055 Ext. 212
Oklahoma	Stillwater: Oklahoma State University Library	(405) 624-6546
Pennsylvania	Philadelphia: Franklin Institute Library	(215) 448-1321**
	Pittsburgh: Carnegie Library of Pittsburgh	(412) 622-3138
	University Park: Pattee Library, Pennsylvania State University	(814) 865-4861
Rhode Island	Providence Public Library	(401) 521-7722 Ext. 226
South Carolina	Charleston: Medical University of South Carolina	(803) 792-2372
Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 528-2957
Texas	Dallas Public Library	(214) 749-4176
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
Wisconsin	Madison: Kurt F. Wendt Engineering Library, University of Wisconsin	(608) 262-6845
	Milwaukee Public Library	(414) 278-3043

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*Collection organized by subject matter.

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PATENT EXAMINING CORPS

RENE D. TEGTMEYER, Assistant Commissioner

WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF February 19, 1983

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director ..... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	1-16-81
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director ..... Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	11-20-81
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director .... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthdontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	7-14-81
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director ..... Coating: Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	1-20-82
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. F. WHITE, Director ..... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	11-12-81
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	4-7-81
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director ..... Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	3-12-81
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—EARL LEVY, Director ..... Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	11-24-80
RECEPTACLES, CLEANING, WINDING, AND MEASURING, GROUP 240—G. M. FORLENZA, Director ..... Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling; Shaft; Impellers; Rotary Fluid Motors.	1-07-81
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director ..... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	8-25-80
DESIGN, GROUP 290—KENNETH L. CAGE, Director ..... Industrial Arts; Household, Personal and Fine Arts.	1-13-81
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director ..... Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	5-18-81
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director ... Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	5-18-81
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. AEGERTER, Director ..... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	2-13-80
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director ..... Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	11-17-80
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350—A. L. SMITH, Director ..... Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	9-12-80

Expiration of patents: The patents within the range of numbers indicated below expire during February 1983, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents ..... Numbers 3,231,896 to 3,237,200, inclusive

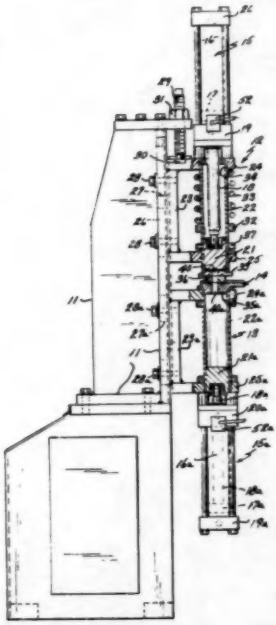
Plant Patents ..... Numbers 2,591 to 2,605 inclusive

REEXAMINATIONS

MAY 17, 1983

Matter enclosed in heavy brackets [ ] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination.

B1 3,521,412 (83rd)
METHOD OF HOUSING BY EXTRUDING
Ralph William McCarty, Monroeville, Pa., assignor to Extrude Hone, Inc., Irwin, Pa.
Continuation-in-part of Ser. No. 506,472, Nov. 5, 1965.
Reexamination Request No. 90/000,058, Aug. 20, 1981.
Reexamination Certificate for Patent No. 3,521,412, issued Jul. 21, 1970, Ser. No. 720,913, Apr. 12, 1968.
U.S. Cl. 51/317 Int. Cl.[3] B24B *1/00, 19/00;* **C08C** *11/04*



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claim **1** is determined to be patentable as amended:

Claims **2–7**, dependent on amended claims, are determined to be patentable.

1. The method of abrading an internal surface comprising compressively pushing over the surface to be abraded in abrasive contact therewith a semi-solid, difficultly flowable plastic material [of the consistency of putty chosen from the group] consisting of silicone putty [and non-vulcanized plastic rubber putty] permeated with finely divided abrasive particles which material becomes a flowable almost solid slug under pressure forming a firm matrix holding said plastic material confined in abrasive pressure contact with said surface.

B1 4,110,240 (84th)
COPRECIPITATION PROCESS
Thomas J. Leo; Anders H. Johansson, both of Yardley, Pa., assignors to Wyrough and Loser, Inc., Trenton, N.J.
Reexamination Request No. 90/000,075, Sep. 25, 1981.
Reexamination Certificate for Patent No. 4,110,240, issued Aug. 29, 1978, Ser. No. 820,557, Jul. 29, 1977.
U.S. Cl. 242/182 Int. Cl.[3] C08C *1/14;* **C08J** *3/20*

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **34** and **60–66**, having been finally determined to be unpatentable, are cancelled.

Claims **1, 13, 26, 35** and **47** are determined to be patentable as amended:

Claims **2–12, 14–25, 27–33, 36–46,** and **48–59,** dependent on amended claims, are determined to be patentable.

1. A process for improving the clarity of the serum produced during coprecipitation of a *water insoluble,* rubber or plastic compounding chemical, *selected from the group consisting of cross-linking agents, curing agents, accelerators, antidegradants, antioxidants, antiozonants, chemical and heat stabilizers, vulcanizing agents, blowing agents, blowing agent activators, retardants, flame retardants, cure modifiers and pigments,* and a binder, comprising

(a) intimately mixing at least one finely divided rubber or plastic compounding chemical, wherein substantially all of the particles thereof are [at least] *greater than* about 0.05 micron in size, with a film-forming binder emulsion comprising a latex of a rubber or plastic polymer in the presence of [an] *only that* amount of water [which permits intimate mixture thereof] *and with that degree of intimacy of mixing that will permit the particles of chemical and the particles of binder to be uniformly and homogeneously mixed and to be sufficiently close to one another so that they can come in contact and be bound together upon coagulation of the mixture,* wherein no compounding chemical used is a *finely divided, high surface area* reinforcing agent or diluent for the rubber or plastic stock,

(b) adding a stoichiometric excess *of up to 10 percent* of a coagulating agent *which destabilizes the particles of binder by reacting with the emulsifier for the particles of binder* during further intimate mixing of the chemical and the binder emulsion to cause complete coagulation thereof, and

(c) physically separating the substantially clear serum *having optimum clarity* produced upon coagulation from the homogeneous, essentially non-tacky, [dustless,] friable particles of predispersed chemical which *are dustless upon drying,*

wherein the particles of predispersed chemical comprise from about 80 to about 99.5 percent by weight of said chemical and from about 0.5 to about 20 percent by weight of binder *and wherein the amounts of said chemical and said binder are selected such that a substantially clear serum having optimum clarity is obtained.*

REISSUES

MAY 17, 1983

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 31,240

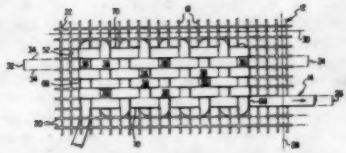
NEEDLEWORK TECHNIQUE USING RIBBON

Patricia D. Mabry, deceased, late of Birmingham, Ala., by Henry C. Mabry, Jr., executor, 2700 Mountain Brook Pkwy., Birmingham, Ala. 35223

Original No. 4,075,962, dated Feb. 28, 1978, Ser. No. 773,498, Mar. 2, 1977. Application for reissue Feb. 28, 1980, Ser. No. 125,762

Int. Cl.³ D05C *17/00*

U.S. Cl. 112—439 **24 Claims**



19. A method of making a needleworked ribbon piece on a needlework canvas having a front, a back and a multiplicity of interconnected strands lying along perpendicular x and y axes and defining a multiplicity of mesh openings, comprising

first steps for laying up a multiplicity of first flat untwisted ribbon sections on the front of said canvas extending in the direction of the x axes;

second steps for laying up a multiplicity of second flat untwisted ribbon sections on the front of the canvas extending in the direction of the y axes; and

third steps including securing the ribbon ends to the piece;

each said first step comprising the passing a ribbon end from the back to the front of said canvas through an x-axis entry mesh opening between pair of adjacent x-axis strands, passing the ribbon end on the front of said canvas across at least one intermediate x-axis opening between said pair of adjacent x-axis strands, and passing the ribbon end from the front to the back of said canvas through an x-axis exit opening between said pair of adjacent x-axis strands beyond said x-axis intermediate opening to provide an untwisted x-axis ribbon section extending between said x-axis entry and exit openings,

each said second step comprising the passing a ribbon end from the back to the front of said canvas through an y-axis entry mesh opening between pair of adjacent y-axis strands, passing the ribbon end on the front of said canvas across at least one intermediate y-axis opening between said pair of adjacent y-axis strands, and passing the ribbon end from the front to the back of said canvas through an y-axis exit opening between said pair of adjacent y-axis strands beyond said y-axis intermediate opening to provide an untwisted y-axis ribbon section extending between said y-axis entry and exit openings,

at least some of said x-axis entry and exit openings being y-axis intermediate openings, and at least some of said y-axis entry and exit openings being x-axis intermediate openings, whereby said untwisted x-axis ribbon sections conceal the underlying y-axis entry and exit openings, and said untwisted y-axis ribbon sections conceal the underlying x-axis entry and exit openings.

24. A needlework piece comprising

a needlework canvas having a multiplicity of perpendicular strands defining mesh openings, the strands extending along perpendicular x and y axes and being small relative to the openings; and

a ribbon having a width between 1–2 times the distance between the centers of adjacent parallel strands;

the ribbon extending through a multiplicity of first mesh entry openings to a multiplicity of front surface positions on the canvas, then to a multiplicity of back surface positions on the canvas through a multiplicity of second mesh exit openings, each first mesh opening being spaced from its associated second mesh opening along the x-axis by at least one intermediate mesh opening, the first, intermediate and second openings being aligned with the x-axes;

the ribbon extending through a multiplicity of third mesh entry openings to a multiplicity of front surface positions on the canvas, then to a multiplicity of back surface positions on the canvas through a multiplicity of fourth mesh exit openings, each third mesh opening being spaced from its associated fourth mesh opening along the y-axis by at least one intermediate mesh opening, the third, intermediate and fourth openings being aligned with the y-axes; and

the ribbon providing a multiplicity of x-axis and y-axis flat untwisted ribbon sections across the intermediate mesh openings on the front surface of the canvas;

said first and second mesh openings for the x-axis sections constituting intermediate openings for the y-axis sections, and said third and fourth mesh openings for the y-axis sections constituting intermediate openings for the x-axis sections.

Re. 31,241

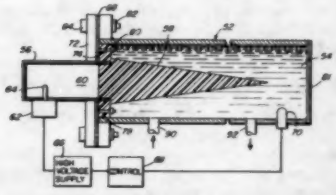
METHOD AND APPARATUS FOR CONTROLLING FLUENCY OF HIGH VISCOSITY HYDROCARBON FLUIDS

William J. Klaila, Middleboro, Mass., assignor to Electromagnetic Energy Corporation, Middleboro, Mass.

Original No. 4,067,683, dated Jan. 10, 1978, Ser. No. 696,063, Jun. 14, 1976. Application for reissue Jan. 9, 1980, Ser. No. 110,666

Int. Cl.³ F23D *11/44*

U.S. Cl. 431—11 **26 Claims**



1. A heating apparatus comprising:

a. a source of electromagnetic energy;

b. container means in which a *hydrocarbon* fluid is confined, said container means having an inlet port and an outlet port through which said fluid flows;

c. means for directing said electromagnetic energy towards said confined *hydrocarbon* fluid, said means for directing including a horn which is disposed within said container means, *in sealing relationship therewith,* said horn *having a base and an apex with walls converging toward said apex from said base and* composed of a material that is impervious to said *hydrocarbon* fluid and is permeable to said electromagnetic energy, said electromagnetic energy *being* converted into thermal energy within said *hydrocarbon* fluid; and

d. control means operatively connected to said source [for regulating the] *of* electromagnetic energy [and controlling the viscosity of said fluid by elevating its temperature] *for regulating the same in response to the temperature of said hydrocarbon fluid.*

Re. 31,242

METAL WORKING EMULSION

Sune Andlid, and Lennart Lindén, both of Karlshamn, Sweden, assignors to AB Karlshamns Oljefabriker, Karlshamn, Sweden

Original No. 4,237,021, dated Dec. 2, 1980, Ser. No. 17,084, Mar. 5, 1979. Application for reissue Jul. 20, 1981, Ser. No. 285,295

Claims priority, application Sweden, Mar. 7, 1978, 7802533

Int. Cl.³ C10M *1/06*

U.S. Cl. 252—49.5 21 Claims

1. A metal working emulsion with good stability and unlimited dilutability for deforming metalworking, including machining by detachment of cuttings, deep-drawing and rolling, comprising an oil phase which is dispersed in a continuous water phase;

the oil phase comprising

0.5–50 parts by weight of triglyceride oil,

0.1–10 parts by weight of fatty acid monoglyceride,

0.05–10 parts by weight of fatty acid, and

0.05–10 parts by weight of alkanolamine or fatty amine;

and the water phase comprising

0.05–3 parts by weight of alkali soaps of fatty acids, and

45–98 parts by weight of water.

Re. 31,243

CATALYST SYSTEM

Nikolaus K. Balint, Naperville, Ill., assignor to Standard Oil Company (Indiana), Chicago, Ill.

Original No. 4,171,284, dated Oct. 16, 1979, Ser. No. 881,828, Feb. 27, 1978. Application for reissue Nov. 25, 1981, Ser. No. 271,565

Int. Cl.³ C08F *4/64*

U.S. Cl. 252—429 B 21 Claims

1. A catalyst composition for the polymerization of propylene or mixtures of propylene and copolymerizable alpha-olefins, which produces low amounts of n-hexane-soluble polymer, comprising a titanium trihalide; [an organoaluminum compound selected from the group consisting of dialkyl aluminum halide, trialkyl aluminum, a mixture thereof, and a mixture of trialkyl aluminum with alkyl aluminum dihalide] *a dialkyl aluminum halide*; and a hexavalent sulfur mineral acid or anhydride in a molar ratio to titanium trihalide from about 0.005 to 1 to about [0.7] *0.5* to 1.

Re. 31,244

ANTIHYPERTENSIVE PYRIDYLGUANIDINE COMPOUNDS

Hans J. Petersen, Valby, Denmark, assignor to Leo Pharmaceutical Products Ltd. A/S (Lovens kemiske Fabrik Produktionsaktieselskab), Ballerup, Denmark

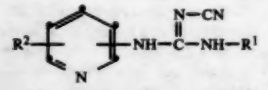
Original No. 4,057,636, dated Nov. 8, 1977, Ser. No. 636,747, Dec. 1, 1975. Application for reissue Oct. 22, 1981, Ser. No. 314,023

Claims priority, application United Kingdom, Dec. 20, 1974, 55209/74

Int. Cl.³ A61K *31/44*; C07D *211/00*

U.S. Cl. 424—263 22 Claims

1. A compound of the formula I



I

or the tautomeric forms thereof in which the R^1-substituted cyano-guanidyl radical is placed in the 2-, 3- or 4-position of the pyridine ring, and in which R^1 stands for aliphatic hydrocarbon having from 1 to 8 carbon atoms, cycloalkyl having from 3 to 8 carbon atoms, phenyl, benzyl or phenethyl, and R^2 stands for hydrogen, halogen, hydroxy, lower alkyl or lower alkoxy radicals, or a salt thereof with a non-toxic, pharmaceutically acceptable acid.

Re. 31,245

PROCESS FOR PREPARING A DIESTER OF OXALIC ACID IN THE GASEOUS PHASE

Kozo Fujii; Keigo Nishihira; Masaoki Matsuda; Shinichiro Uchiumi, all of Ube, Japan, and Kenji Nishimura, deceased, late of Ube, Japan (by Yoko Nishimura, administrator), assignors to UBE Industries, Ltd., Ube, Japan

Original No. 4,229,591, dated Oct. 21, 1980, Ser. No. 938,358, Aug. 31, 1978. Application for reissue Aug. 18, 1981, Ser. No. 293,932

Claims priority, application Japan, Jan. 25, 1978, 53-6150; Jan. 30, 1978, 53-8268

Int. Cl.³ C07C *67/36, 69/36*

U.S. Cl. 560—193 9 Claims

4. A process for preparing a diester of oxalic acid which comprises bringing, in a zone in which a liquid phase is not accumulated, carbon monoxide together with a vaporized ester of nitrous acid in a gaseous phase into contact with a solid catalyst containing metallic palladium or a salt thereof at a temperature of 50° to 200° C. and under a pressure in the range where a liquid phase is not accumulated in said zone, said ester of nitrous acid being an ester of nitrous acid with an alcohol having 1 to 8 carbon atoms selected from the group consisting of a saturated monohydric aliphatic alcohol and an alicyclic alcohol, to produce in said zone the diester of oxalic acid containing the same ester group as that of said ester of nitrous acid.

Re. 31,246

DETERMINATION OF THE ALCOHOL CONTENT OF BLOOD

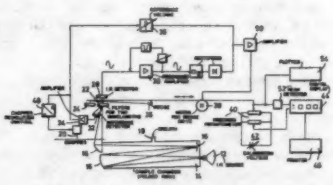
Werner K. Adrian, Waterloo, Canada, and Robert F. Borkenstein, Bloomington, Ind., assignors to BDT Büro-und Datentechnik GmbH, Fed. Rep. of Germany

Original No. 4,057,724, dated Nov. 8, 1977, Ser. No. 667,847, Mar. 17, 1976. Application for reissue Nov. 6, 1979, Ser. No. 91,773

Claims priority, application Fed. Rep. of Germany, Mar. 17, 1975, 2511771

Int. Cl.³ G01N *21/26*

U.S. Cl. 250—343 9 Claims



6. A device for measuring the concentrations of ethanol and acetone in a sample of human breath, said device comprising, in combination,

a. an infrared radiation source;

b. a measuring chamber adapted to contain a sample of human breath, said radiation from said source, directed through said chamber;

c. a first filter having a pass band at a predetermined first wavelength;

d. a second filter having a pass band at a predetermined second wavelength, said first and second wavelengths chosen such as to have band passes at different ranges of absorption for ethanol and acetones, said filters disposed for insertion in the path of said radiation after passing through said chambers;

e. detector means for measuring the radiation which has passed said filters; and

f. means for converting the output of said detector means into

signals which are proportional to the concentrations of ethanol and acetone in said breath sample.

Re. 31,247

DIAGNOSTIC COMMUNICATIONS SYSTEM FOR COMPUTER CONTROLLED MACHINE TOOLS

Richard Johnstone, Brookfield, Wis., assignor to Kearney & Trecker Corporation, Milwaukee, Wis.

Original No. 3,882,305, dated May 6, 1975, Ser. No. 433,439, Jan. 15, 1974. Application for reissue Sep. 8, 1981, Ser. No. 299,866

Int. Cl.³ G06F *15/46*

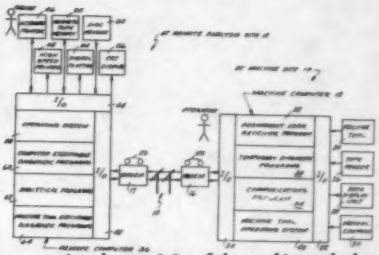
U.S. Cl. 364—474 **13 Claims**

1. In a computer controlled machine tool system having a machine tool, a computer for said machine tool, and a power drive means connected to effect operation of said machine tool in response to signals from said computer, the combination comprising:

a. control means located at a site remote from said machine *tool* and connected to said computer for controlling said computer to operate said machine[.] *tool so as to cause said computer for said machine tool to initiate execution of a set of predetermined diagnostic programs to gather diagnostic data indicative of the operating characteristics of said machine tool;*

b. means responsive to the operation of said machine tool for communicating [selected] *said diagnostic* data from said machine tool site to said remote site[.];

c. means located at said remote site for comparing said [selected] *diagnostic* data with [predetermined] *previously gathered initial machine* data[.] *indicative of the same operating characteristics of the machine tool when it was in its pristine state; and*



d. means for manifesting a difference between said [selected] *diagnostic data* and said [predetermined] *previously gathered initial machine* data.

PLANT PATENTS

GRANTED MAY 17, 1983

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing

5,053

RED MAPLE TREE

Harold M. Pellett, Mound, and Leon C. Snyder, Excelsior, both of Minn., assignors to University of Minnesota, Minneapolis, Minn.

Filed Jun. 22, 1981, Ser. No. 275,944
Int. Cl.³ A01H 5/12
U.S. Cl. Plt.—51 1 Claim

1. A new and distinct variety of red maple tree, substantially as shown and described herein, characterized particularly as to novelty by the unique combination of a rapid vigorous growth, a well-rounded full spreading and well-branched oval crown form, early autumn maturity and excellent winter hardiness, a fall red color better than average for the species, and an absence of seeds.

5,054

NEW AND DISTINCT VARIETY OF GERANIUM NAMED VERONICA

Wilhelm Elsner, Dresden, German Democratic Rep., assignor to Oglevee Associates, Inc., Connellsville, Pa.

Filed Nov. 10, 1981, Ser. No. 319,968
Int. Cl.³ A01H 5/00
U.S. Cl. Plt.—68 1 Claim

1. A new and distinct variety of geranium plant substantially as herein shown and described.

PATENTS

GRANTED MAY 17, 1983

ERRATA

For CLASS	See PATENT NO.
604–020	4,383,529
604–274	4,383,530
604–114	4,383,531
494–043	4,383,639
384–282	4,383,719
445–054	4,383,723
414–563	4,383,807
419–001	4,383,854
419–019	4,383,855
419–006	4,383,856
371–008	4,384,194
377–053	4,384,195
378–014	4,384,209
382–050	4,384,272
382–034	4,384,273
382–049	4,384,336

PATENTS

GRANTED MAY 17, 1983

GENERAL AND MECHANICAL

4,383,335
ROBE ADAPTED FOR INCONTINENT INDIVIDUALS
Patricia K. Slocum, 1919 Annette La., Los Altos, Calif. 94022
Filed Jan. 24, 1978, Ser. No. 871,831
Int. Cl.³ A41B *9/00*
U.S. Cl. 2—114 **3 Claims**

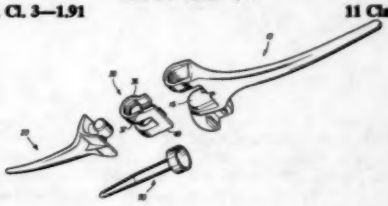
1. A robe for incontinent individuals comprising:
(a) a front panel extending continuously from the neck downward to about the feet of the wearer and extending across the front of the body of the wearer;
(b) upper rear panel forming sections extending from either edge of said front panel around the sides and across the back of the wearer to the middle of the back, and including means for securing together said upper sections;
(c) sleeves having first ends secured between said front panel and said upper sections with longitudinal openings extending throughout the length thereof and being shaped to cover at least the shoulders of the wearer;
(d) lower rear panel forming sections extending from either edge of the lower part of the front panel, said lower sections being adapted for wrapping around the legs of the wearer; and
(e) said upper and said lower sections being spaced apart along the edges of said front panel such that the upper and lower rear panel forming sections separate when worn in a sitting position so as not to expose any part of the robe beneath the buttocks of the wearer when seated.

4,383,336
HAND COVERING
Marshall H. Beckman, R.D. #1 Box 198, Normandy Ct., West Hurley, N.Y. 12491, and Frederick L. Ballet, 44 Brittany Farms Rd. K106, New Britain, Conn. 06053
Filed Sep. 2, 1981, Ser. No. 298,578
Int. Cl.³ A41D *25/00*
U.S. Cl. 2—158 **14 Claims**

1. A hand covering comprising:
(a) a flexible hand enclosing member having a transverse slit-like opening through which one or more fingers may be passed;
(b) an upper elastic strip attached to said hand enclosing member and extending transversely along the upper side of said slit-like opening;
(c) a lower elastic strip attached to said hand enclosing member and extending transversely along the lower side of said slit-like opening;
(d) an upper fastening member attached to said hand enclosing member and extending transversely over said upper elastic strip with its fastening side facing away from said upper elastic strip; and
(e) a lower fastening member, adapted to coact with said upper fastening member, attached to said hand enclosing member and extending transversely over said lower elastic strip with its fastening side facing away from said lower elastic strip;
(f) whereby when fingers of a hand enclosed by said hand enclosing member are clenched said upper and lower fastening members fasten together to fasten said slit-like

opening closed, and when the clenched fingers are extended and pressed against the inside end of said hand enclosing member said fastening members are unfastened to permit one or more of the fingers to pass through said slit-like opening.

4,383,337
ELBOW PROSTHESIS
Robert G. Volz, Tucson, Ariz.; Richard R. Vanzile, and Richard C. Bolesky, both of Warsaw, Ind., assignors to Zimmer USA, Inc., Warsaw, Ind.
Filed Oct. 22, 1980, Ser. No. 199,491
Int. Cl.³ A61F *1/04*
U.S. Cl. 3—1.91 **11 Claims**



1. An elbow prosthesis comprising:
(a) an intermediate insert having an inner bore and first and second outer surfaces perpendicular to an axis of the inner bore, the insert being a single insert comprising first and second U-shaped parallel members, each of said U-shaped members having a right leg and a left leg with a slot therebetween and connected by a bottom portion, said U-shaped parallel members being arranged so that the slots form the inner bore, the left legs of said first and second U-shaped members being connected by an integral portion and the right legs of said U-shaped members having an opening therebetween;
(b) a humeral member including means for engaging the intermediate insert by engaging the first and second outer surfaces; and
(c) an ulnar member including means for engaging the inner bore, the axis of said inner bore forming a pivot point between the humeral member and the ulnar member.

4,383,338

HOMOTRANSPLANT FOR CONJUNCTIVIPLASTY

Ernst R. Muldashev, ulitsa Rossiiskaya 17/2, kv. 94; Rafik T. Nigmatullin, ulitsa Vostretsova, 14, kv. 19; Venera U. Galimova, ulitsa Ulyanovykh, 20, kv. 74; Klara A. Zakhvatkina, ulitsa 8 Marta, 63, kv. 63, and Sagit A. Muslimov, ulitsa Aralskaya, 21, kv. 1, all of Ufa, U.S.S.R.

Filed Mar. 20, 1981, Ser. No. 246,038
Int. Cl.³ A61F *1/16, 1/24*
U.S. Cl. 3—13 **2 Claims**

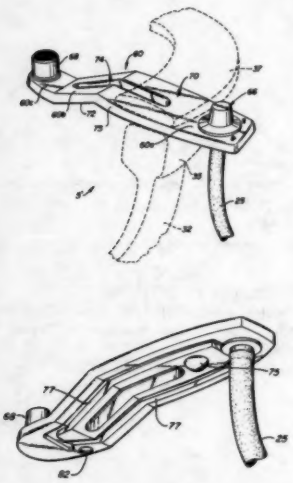
1. A homotransplant for conjunctiviplasty, comprising a non-viable preserved retroperitoneal fascia.

4,383,339

BIDET ADAPTOR FOR TOILET

Daniel C. Miller, P.O. Box 860, Bethel Island, Calif. 94511

Filed May 27, 1981, Ser. No. 267,500
Int. Cl.³ A47K *3/22, 11/08*
U.S. Cl. 4—448 **12 Claims**



1. A portable bidet adaptor for use with a toilet having a bowl, a peripheral rim of predetermined thickness along an upper region of the bowl, and a seat, with the seat overlying the rim of the bowl and spaced apart therefrom by a predetermined gap spacing, comprising:

a generally horizontal rigid conduit having first and second ends and being sized to fit between the seat and the rim;

upwardly opening means in fluid communication with the second end of the generally horizontal conduit for discharging in an upward column liquid that is introduced into the first end of the generally horizontal conduit and flowed through the generally horizontal conduits;

the generally horizontal conduit being sufficiently long in relation to the predetermined thickness of the rim and substantially free of vertical projections beyond the predetermined gap spacing over a sufficient distance to freely slide to provide movement of the upward column toward and away from the rim;

diversion means for downwardly directing the liquid into the bowl while maintaining the column discharging means in an upwardly open position; and

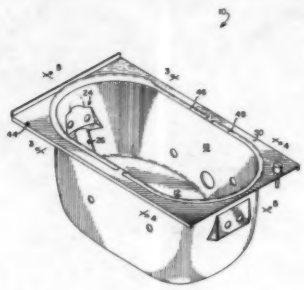
stabilization means associated with the diversion means for preventing rotation of the bidet adaptor about a horizontal axis.

4,383,340

RETROFIT WHIRLPOOL BATH HAVING FLOW DIRECTING RECESSES

Alfred J. Braun, Jr., San Jose, Calif., assignor to Solar Heating & Spas, Inc., San Jose, Calif.

Filed Dec. 8, 1980, Ser. No. 214,038
Int. Cl.³ A61H *9/00*
U.S. Cl. 4—541 **11 Claims**



1. A retrofit whirlpool bath having flow directing recesses comprising:

a tub having an oblong bottom section and four, contiguous, upwardly and outwardly extending wall sections including

a first end wall section having a first back supportive surface and a first wedge-shaped recessed surface extending back from said first back supportive surface and a generally vertical, semi-tubularly shaped surface extending back from said first supportive surface and intersecting said first wedge-shaped recessed surface, said first recessed surface being provided with a first aperture receptive to a water jet nozzle, said first wedge-shaped recessed surface including a first ledge surface for directing a flow of water up and against the back of a person leaning against said first supportive surface,

a second end wall section having a second back supportive surface and a second wedge-shaped recessed surface extending back from said second back supportive surface, said second recessed surface being provided with a second aperture receptive to a water jet nozzle, said second wedge-shaped recessed surface including a second ledge surface for directing a flow of water up and against the back of a person leaning against said second supportive surface, and

a pair of opposing side wall sections connecting said first end wall section and said second end wall section,

wherein said bottom section and said four contiguous wall sections smoothly merge together to produce a contoured, oblong-shaped inner tub surface.

4,383,341

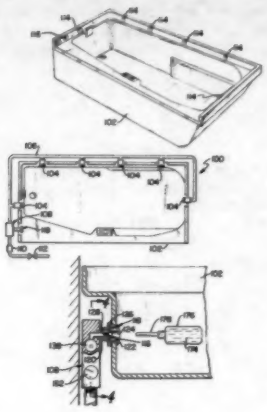
BATHTUB SELF-CLEANING SYSTEM

Murray Altman, 1560 Palisade Ave., Fort Lee, N.J. 07024

Filed Apr. 2, 1981, Ser. No. 250,428
Int. Cl.³ A47K *4/00*; E03C *1/01*
U.S. Cl. 4—662 **15 Claims**

1. A system for cleaning the walls of a bathtub comprising, a plurality of spray nozzles adapted to be arranged to distribute a cleaning solution and dilutent over the walls of a bathtub, fluid conduit means communicating with each of said spray nozzles for supplying the cleaning solution and dilutent thereto, and control means for supplying the cleaning solution and dilutent to said fluid conduit means, said control means constructed and arranged to combine a concentrate with the

dilutent to form the cleaning solution for use in cleaning the walls of the bathtub during a first cycle and to provide the



dilutent for rinsing the walls of the bathtub during a second cycle.

4,383,342

MATTRESS FOR A SITTING OR LYING PERSON

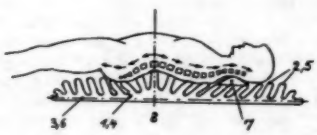
Peter Forster, Oberfürberger Strasse 73, 8510 Fürth, Fed. Rep. of Germany

Filed Mar. 13, 1981, Ser. No. 243,492

Claims priority, application Fed. Rep. of Germany, Mar. 15, 1980, 3010122

Int. Cl.³ A47C *27/00*; A61H *7/00*

U.S. Cl. 5—432 **8 Claims**



1. A device for supporting a reclining human body comprising a longitudinally extending pad made of elastic material and having a series of lateral rows of raised ribs for supporting the human body, the free ends of the ribs disposed below the lumbar region of the human body all being tilted relative to the longitudinal axis of said pad toward the legs of the human body and the free ends of the ribs disposed above the lumbar region all being tilted relative to the longitudinal axis of said pad toward the head of the human body such that a tensile force is exerted on the spinal column of the human body.

4,383,343

FOOT SUPPORTING STRAP FOR HOSPITAL BED

Thomas S. Kulka, 2108 Payne Ave., Cleveland, Ohio 44114

Continuation-in-part of Ser. No. 65,151, Aug. 9, 1979, Pat. No. 4,227,271. This application Sep. 30, 1980, Ser. No. 192,635

The portion of the term of this patent subsequent to Oct. 14, 1992, has been disclaimed.

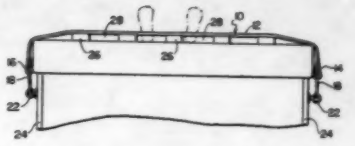
Int. Cl.³ A47C *21/00*

U.S. Cl. 5—443 **6 Claims**

1. A foot supporting strap for beds comprising:

(a) a strap having a length longer than the width of the bed whereby the ends of the strap extend downwardly over the sides of the bed;

(b) mounting means at the ends of said strap for detachably mounting said strap to a frame or other parts of said bed, and



(c) means at least on the underside of said strap for spacing said strap from the mattress of the bed, whereby in the regions adjacent said spacing means there is formed a space into which the feet of the patient can at least partially extend, said strap providing a brace against which the feet of the patient can push to permit movement of the patient to a more comfortable position.

4,383,344

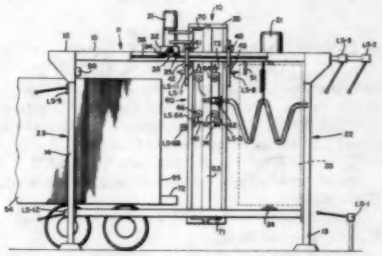
VEHICLE REAR SURFACE WASHING SYSTEM

Charles R. Scraggs, 3348 Flowers Dr., College Park, Ga. 30337, and Paul E. Northcutt, 4984 Crowe Dr., Smyrna, Ga. 30080

Filed May 7, 1981, Ser. No. 261,481

Int. Cl.³ B60S *3/06*

U.S. Cl. 15—53 A **14 Claims**



1. An apparatus for cleaning the rearwardly facing vertical surface of a vehicle, comprising:

a rotary brush movable within predetermined limits laterally towards and away from said vertical surface from behind said vehicle for brushing said vertical surface;

control means for providing a forward signal when said vertical surface is within said predetermined limits, a halt signal when said brush is adjacent said vertical surface, and a return signal when said brush has brushed said vertical surface;

first power means responsive to said forward signal, said halt signal, and said return signal for moving said brush towards said vertical surface upon receipt of said forward signal, halting said brush upon receipt of said halt signal, and moving said brush away from said vertical surface upon receipt of said return signal; and

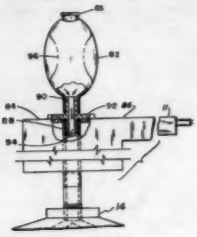
second power means for brushing said vertical surface with said brush.

4,383,345

HAND-HELD BUFFING-POLISHING MACHINE

John D. Alexander, Rte. 1, Box 95-B, Sheffield, Ala. 35660

Filed Nov. 3, 1980, Ser. No. 203,318
Int. Cl.³ A46B 13/04
U.S. Cl. 15—97 R 3 Claims



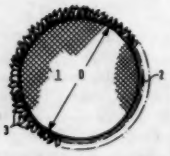
1. A surfacing machine comprising:
a frame, including a hand-holding extension of said frame;
a rotable drive machine supported on said frame and including an electrical motor and a driven, rotating, hollow shaft, at right angles to said hand extension, said shaft extending out of said machine at opposite ends, and said shaft having a fluid receiving opening at one end and a threaded region and a fluid dispensing opening at an opposite end;
a stationary-to-rotary fluid coupling supported by said frame and having a fixed fluid receiving member rotably coupled to the fluid receiving end of said shaft;
a compressible bulb coupled in a stationary mode to said stationary-to-rotary fluid coupler and being coupled through said coupling in line with said hollow shaft; and
a work engaging member having openings therethrough and having a threaded region engaging the threaded end of said hollow shaft and supported thereon.

4,383,346

CLEANING MEMBER FOR CLEANING THE INTERIOR OF HEAT EXCHANGER TUBES

Rolf Bochinski, Duisburg; Klaus Eimer, Ratingen; Hans W. Schildmann, Helligenhaus, and Günther Schmitz, Moers, all of Fed. Rep. of Germany, assignors to Taprogge Gesellschaft mbH, Düsseldorf, Fed. Rep. of Germany

Filed Jun. 9, 1981, Ser. No. 271,823
Claims priority, application Fed. Rep. of Germany, Jun. 10, 1980, 3021697
Int. Cl.³ B08B 9/04
U.S. Cl. 15—104.06 R 4 Claims



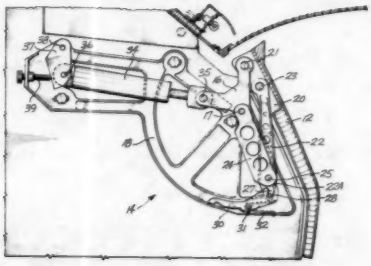
1. Cleaning member for cleaning the interior of heat exchanger tubes by circulating through the tubes under the force of a coolng water stream already existing in the tubes, comprising a spherical sponge rubber body having a given diameter, an adhesive film disposed on said spherical sponge rubber body, and an abrasive layer formed of granular abrasive elements being fastened on said spherical sponge rubber body exclusively by said adhesive film, said granular abrasive elements having an average linear dimension being smaller than said given diameter of said spherical sponge rubber body, and said granular abrasive elements being disposed in a loose packing having packing interspaces formed therein between said granular abrasive elements and joints of adhesive film between said granular abrasive elements causing said abrasive layer to be deformable together with said spherical sponge rubber body.

4,383,347

FOUR-BAR LINKAGE DOOR HINGE

Richard J. La Conte, Auburn, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Feb. 25, 1981, Ser. No. 238,252
Int. Cl.³ E05D 15/32
U.S. Cl. 16—360 6 Claims



1. A cam guided four-bar linkage mechanism for profiling the hinging operation of a door, comprising: a first link having a pivot at one end fixed to door support structure; a second link fixedly fastened along the door surface and pivotally connected at one end to the swinging end of said first link; a third link pivotally connected at one end to the other end of said second link; a fourth link having a fixed pivot mounting at one end in axial alignment with said first link pivot which is fixed to door support structure, and said fourth link having its swinging end pivotally connected to the other end portion of said third link; a camtrack mounted to fixed door support structure; a cam follower mounted to said third link and operatively engaging said camtrack for guiding the four-bar linkage mechanism to profile the opening and closing operation of the door; and said first and third links being geometrically arranged to produce an imaginary projected intersection thereof throughout the opening and closing operation of the door, and which projected intersection is profiled by said camtrack to be retained within a limited area for producing the feel of a single point door hinge.

4,383,348

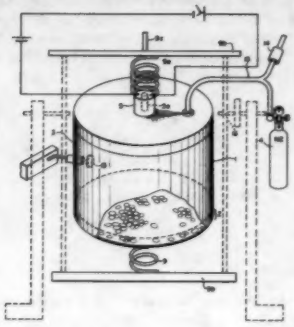
DEVICE FOR OPENING SHELLFISH

John E. Comparetto, P.O. Box 433, Nassawadox, Va. 23413

Division of Ser. No. 955,549, Oct. 27, 1978, Pat. No. 4,313,241.
This application Oct. 21, 1981, Ser. No. 313,391
Int. Cl.³ A22C 29/04
U.S. Cl. 17—74 8 Claims

1. A shellfish opening device comprising a hyperbaric pressure chamber, means for holding shellfish in the chamber, an energy transducer source within the chamber, for passing energy waves through fluid surrounding the shellfish in the chamber, means for subjecting the chamber to hyperbaric pressures, means for rapidly releasing the hyperbaric pressure

from the chamber whereby shellfish open in the chamber, wherein the pressure releasing means comprises a lid closing



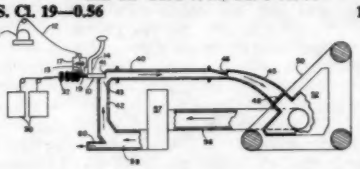
the chamber and magnet positioned adjacent the lid for holding the lid and chamber closed.

4,383,349

OPENING BONDED GLASS FIBER BUNDLES

Preston F. Marshall, Walpole, Mass., assignor to The Kendall Company, Walpole, Mass.

Filed Aug. 4, 1980, Ser. No. 175,337
Int. Cl.³ B29J 5/00; B29C 13/00
U.S. Cl. 19—0.56 **11 Claims**



1. A method of forming a high velocity stream of discretely separated textile length coated glass fibers of substantial uniform length from substantially uniform length multifilament strand bundles of substantially parallel glass fibers coated and bonded together with an interfiber bonding agent, comprising

feeding said bonded strand bundles into the aspirator fiber inlet of a momentum exchange aspirator having

a high pressure propelling gas source inlet providing propelling gas at a velocity at said propelling gas inlet generally equal to the velocity of sound at the temperture of said propelling gas

to cause flow of aspirated gas through said aspirator inlet at a volume in cubic feet per minute less than that of the volume in cubic feet per minute of said high pressure propelling gas

to carry said bundles into said aspirator inlet and

to produce a turbulent flow zone between said aspirated gas and said propelling gas

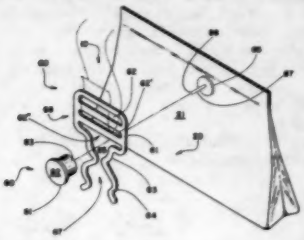
for separating in said turbulent flow zone the individual textile length glass fibers of said multifilament bundles by destroying the interfiber bonds therebetween without destroying the protective coating on said fibers and with minimum breakage of said fibers to form said high velocity stream of discretely separated textile length coated glass fibers of substantial length.

4,383,350

RELEASABLE THEFT PROTECTION DEVICE

Raymond J. A. Coty, 5B Drummond Dr., Rocky Hill, Conn. 06067

Filed Aug. 19, 1981, Ser. No. 294,083
Int. Cl.³ A44B 19/00
U.S. Cl. 24—230 R **10 Claims**



1. A theft prevention device for an article, such as a purse, which is designed to be supported by a strap, comprising:

a first major component connected to at least one end of the strap,

a second major component connected to said article, and adapted to be releasably connected to said first major component, to form a connection between said one end of said strap and said article under normal usage, and

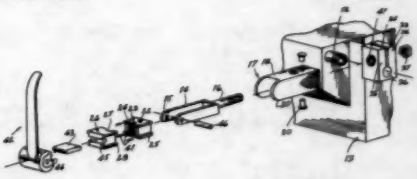
a frangible filament secured between the first major component, and the second major component.

4,383,351

UNIVERSAL CLAMP

Loel Fenwick, S 161 Adams, Spokane, Wash. 99204

Filed Oct. 23, 1981, Ser. No. 314,235
Int. Cl.³ A44B 21/00; F16L 3/08; F16B 2/18
U.S. Cl. 24—263 B **4 Claims**



1. A universal clamp for adjustable positioning of a post relative to a stationary mounting stud, comprising:

an elongated channel having a rigid extension protruding outward from one end;

an elongated sleeve having opposed rigid side walls movably fitted about said channel with said extension protruding outward from within the sleeve beyond a first sleeve end;

aligned openings formed through opposed sides of the sleeve and adapted to freely receive a post;

a first jaw positioned within said sleeve to one side of said openings, said first jaw being movable relative to said channel;

means fixing said first jaw to said sleeve;

a second jaw positioned within said sleeve to the remaining side of said openings in adjacent opposition to said first jaw, said second jaw being movable relative to said channel;

a base clamp having a split aperture adapted to receive a mounting stud between two integral clamp segments, said clamp segments having aligned apertures formed transversely through them;

said extension being received through the aligned apertures in said clamp segments;

means operably connecting the outer end of said extension and the outermost clamp segment;

first and second complementary outer surfaces formed about said extension on the first sleeve end and innermost clamp segment, respectively, in adjacent opposition to one another; and

operator means operably connected between the remaining end of said channel and said second jaw for tensioning said channel and extension to draw the two clamp segments of the base clamp and said first and second outer surfaces of the first sleeve end and innermost clamp segment toward one another in compression and for compressively moving said first and second jaws toward one another through the interposed sleeve to grasp a post received through the sleeve openings;

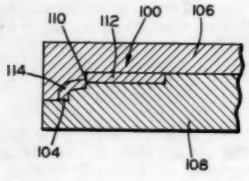
whereby the position of a post located between the jaws can be releasably fixed relative to the mounting stud by manipulation of said operator means.

4,383,352

METHOD OF MAKING SPRING CLUTCH COLLECTOR RING

Richard A. Flotow, Fort Wayne, and Lawrence C. Lantz, Garrett, both of Ind., assignors to Dana Corporation, Toledo, Ohio

Filed Oct. 19, 1981, Ser. No. 312,216
Int. Cl.³ B23D *17/00*
U.S. Cl. 29—418 **11 Claims**



1. A method of making a collector ring for a Belleville clutch spring comprising the steps of:

(a) providing a body having a circular perimeter;

(b) forming a reduced shear annulus in said body radially inwardly of said perimeter to define an outer ring about said reduced shear annulus and an inner body portion radially inwardly of said reduced shear annulus, said ring being integrally joined to said inner body portion via said reduced shear portion,

(c) heat treating said body, and

(d) detaching said outer ring from said inner body portion along said reduced shear annulus, whereby said detached outer ring comprises said collector ring.

4,383,353

PROCESS OF FORMING A JOINT WITH A PREDETERMINED CLAMP-UP LOAD

Edgar L. Stencel, Huntington Beach, Calif., assignor to VSI Corporation, Pasadena, Calif.

Division of Ser. No. 849,756, Nov. 9, 1977, Pat. No. 4,260,005. This application Nov. 10, 1980, Ser. No. 205,605
Int. Cl.³ B21D *39/00*; B23P *11/00*
U.S. Cl. 29—517 **6 Claims**

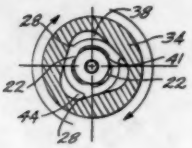
1. A process for forming a joint with a predetermined clamp-up load comprising the steps of:

(a) inserting an externally threaded end of of a headed pin through a hole in a workpiece of the joint;

(b) constraining the head of the pin with the workpiece from moving in one direction axially of the pin;

(c) threading an internally threaded collar onto the threaded end of the pin extending from the workpiece and engaging the workpiece with the collar in opposition to the constraint to load the pin in tension and apply an axially directed clamp-up force onto the workpiece;

(d) applying with a driver rotated about a longitudinal axis of the collar concentric to its threads a force tangential with respect to the axis of the collar on at least one external lobe of the collar to effect the threading while at the same time applying with the driver a force radial with



respect to the longitudinal axis of the collar onto the lobe; the radial force being a direct function of the tangential force, and the tangential force being a direct function of the clamp-up load being applied to the workpiece; and

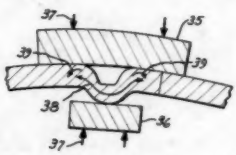
(e) plastically yielding the lobe and collar material radially inside the lobe to force such material against the pin thread to rotationally lock the pin and collar together, the plastic yielding being in response to the radial force.

4,383,354

METHOD OF FORMING AN INTERLOCKING METAL JOINT

Phillip E. Saurenman, 3438 Vosburg St., and William A. Casler, 3487 Barhite St., both of, Pasadena, Calif. 91107

Filed Apr. 23, 1981, Ser. No. 256,718
Int. Cl.³ B21D *39/00*; B23P *11/00*
U.S. Cl. 29—522 R **9 Claims**



1. The method of forming an interlocking metal joint comprising:

in a continuous piece of plate metal having a pair of opposite faces, forming a dimple raising one surface, recessing the opposite surface, and thinning the metal within the dimple so as to increase its path length compared to the plate metal, thereby resulting in a departure of a localized region from both of said faces, said dimple being entirely surrounded by undimpled material,

forming a strip of said metal having opposite ends, one of said ends having a tongue including said dimple and the other having a recess, said tongue having said dimple therein and recess being congruent, each having a respective edge;

forming said strip of metal into a cylinder shape and interengaging said tongue having said dimple therein and recess in a subtantially common plane, whereby said tongue and groove precisely interfit; and

after said interengagement, flattening said dimple toward said common plane, whereby to extend the respective edge into tight contiguity with an abutting edge.

4,383,355

METHOD FOR THE PRODUCTION OF A SEALED HOUSING FOR A DISK SHAPED SEMICONDUCTOR BODY WHICH EXHIBITS AT LEAST ONE PN-TRANSITION

Dieter Eisele, Lampertheim, Fed. Rep. of Germany, assignor to BBC Brown, Boveri & Company, Limited, Baden, Switzerland

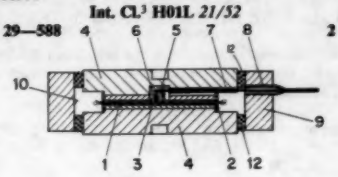
PCT No. PCT/CH79/00070, § 371 Date Feb. 21, 1980, § 102(e) Date Feb. 21, 1980, PCT Pub. No. WO80/00640, PCT Pub. Date Apr. 3, 1980

PCT Filed May 18, 1979, Ser. No. 198,101

Claims priority, application Fed. Rep. of Germany, Sep. 7, 1978, 2838997

Int. Cl.³ H01L *21/52*

U.S. Cl. 29—588 **2 Claims**



1. A method for the production of a sealed housing for a disc shaped semiconductor body having at least one pn-transition, said method comprising the steps of:

pressure contacting opposing axial surfaces of said semi-conductor body with electrode elements and contact bodies to form a thermally and electrically sealing axial housing for said semiconductor body;

positioning a stretched elastic seal ring on the radial periphery of each said contact body, said seal ring comprising tubing sections formed of a material treated by electron irradiation and radially expandable by heating;

inserting said axial housing into a hollow radial housing whose inner diameter defines a gap with respect to said seal rings; and

heating said seal rings, whereby said seal rings radially expand to close said gap and form a sealed housing.

4,383,356

METHOD AND APPARATUS FOR THE PRODUCTION OF ROTOR AND STATOR SHEET PACKETS FOR ELECTRICAL MACHINES

Karl-Heinz Fichtner, Hanau, Fed. Rep. of Germany, assignor to Balzer and Droll KG, Niederdorfelden, Fed. Rep. of Germany

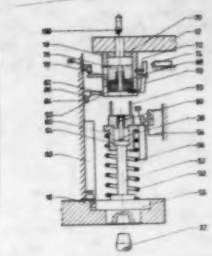
Filed Feb. 25, 1980, Ser. No. 124,087

Claims priority, application Fed. Rep. of Germany, Feb. 24, 1979, 2907261

Int. Cl.³ H02K *15/02*

U.S. Cl. 29—598 **32 Claims**

1. A method for making a packet of rotor or stator sheets for electrical machinery comprising the steps of: arranging a stack of the required number of sheets at a certain position relative to the line of action of an aligning device, operating the aligning device by causing relative movement between the stack and the aligning device along said line of action to effect the predetermined radial and circumferential alignment of the sheets, and with the stack still in said position relative to the line of action of the aligning device, joining the sheets together by moving a joining means along a line of action parallel to the line of action of the aligning means, and including operating



the aligning device and moving the joining means with a common drive means.

4,383,357

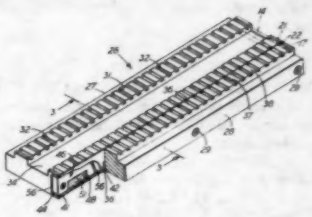
METHODS OF ALIGNING PARAMAGNETIC ARTICLES

James S. Chapman, Lee's Summit, and Anthony Tedeschi, Raytown, both of Mo., assignors to Western Electric Co., Inc., New York, N.Y.

Filed Apr. 16, 1981, Ser. No. 254,725

Int. Cl.³ H01H *11/00*

U.S. Cl. 29—622 **4 Claims**



1. A method of aligning a plurality of paramagnetic articles for assembly, which comprises:

guiding a plurality of first articles into positions spaced from each other, and tangentially to a magnetic field to induce magnetism within such first articles;

restraining a longitudinal movement of such first articles with a nonmagnetic spacer to prevent such first articles from becoming centered with respect to a plane of symmetry of said magnetic field, whereby one end of each of said first articles is urged against said spacer; and

guiding each of a plurality of second articles into coextensive alignment with one of said plurality of first articles, whereby an adjacent end of each of said second articles is magnetically drawn toward an adjacent end of a respective one of said first articles and into contact with said spacer to become spaced from the adjacent end of the respective first article by the thickness of the spacer.

4,383,358

METHOD OF MANUFACTURING AN ELECTROCHEMICAL CELL

Emanuel Peled, Even Yehuda, Israel, and Anthony Lombardi, Winchester, Mass., assignors to GTE Laborstories Incorporated, Waltham, Mass.

Division of Ser. No. 208,977, Nov. 21, 1980, Pat. No. 4,318,969. This application Nov. 3, 1981, Ser. No. 317,806

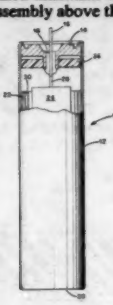
Int. Cl.³ H01M *4/36*

U.S. Cl. 29—623.1 **3 Claims**

1. The method of manufacturing an electrochemical cell comprising

providing an electrochemical cell assembly having an anode electrode including a mixture of an oxidizable metal and an element, said element having an oxidation potential less than said oxidizable metal;

partially discharging the electrochemical cell assembly at a current density which maintains the potential in the electrochemical cell assembly above the oxidation potential of



said element to deplete the amount of said oxidizable metal at the surface portion of the anode electrode; and

conditioning the electrochemical cell assembly at a temperature and for a period of time to convert the remainder of the oxidizable metal and element in the surface portion to an intermetallic phase of said oxidizable metal and said element.

4,383,359

PARTS FEEDING AND ASSEMBLING SYSTEM

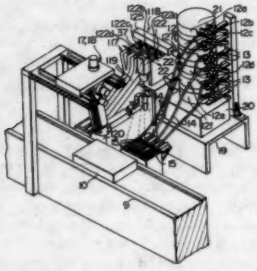
Takamichi Suzuki; Tomoaki Sakata; Koichi Sugimoto, and Michinaga Kohno, all of Yokohama, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 10, 1980, Ser. No. 186,151

Claims priority, application Japan, Sep. 11, 1979, 54-115657

Int. Cl.³ B23P *19/04, 21/00*

U.S. Cl. 29—712 **6 Claims**



1. A parts feeding and assembling system comprising:

a parts supply containing a multiplicity of parts constructed for being assembled into an assembly of parts in a specific direction;

separating and feeding means for separating each of said parts from the multiplicity of parts in said part supply in a random orientation and for feeding each separated, randomly oriented part to a positioning station;

tentative positioning means for tentatively positioning parts fed to said positioning station;

visual discriminating means for optically determining the orientation of a part tentatively positioned by said tentative positioning means in said positioning station and whether it corresponds to a correct assembly orientation;

orientation changing means for changing the orientation of a part tentatively positioned by said tentative positioning means to a correct assembly orientation in response to a determination by said visual discriminating means that the position of said part does not correspond to a correct assembly orientation;

assembling means for assembling each part into an assembly of parts disposed at a predetermined location after the part is correctly oriented by said orientation changing means or is determined to be correctly oriented by said visual discriminating means.

4,383,360

APPARATUS FOR INSERTING COILS INTO CORE STRUCTURE WITH INNER AND OUTER COIL ADVANCING MEANS

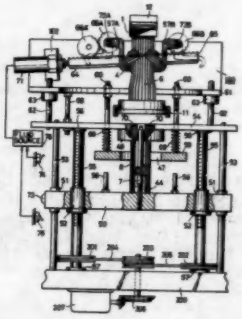
Tokuhito Hamane, Hirakata, and Masaaki Tasai, Kadoma, both of Japan, assignors to Matsushita Electric Industrial Company, Limited, Osaka, Japan

Filed Feb. 4, 1981, Ser. No. 231,934

Claims priority, application Japan, Feb. 6, 1980, 55-14141

Int. Cl.³ B23P *19/00*

U.S. Cl. 29—736 **4 Claims**



1. A coil insertion apparatus for inserting loosely bundled coils respectively into grooves of a core structure angularly spaced-apart parallel guide paths by pushing inner portions of said coils by means of a coil pusher, comprising:

first means for moving said coil pusher to advance said inner portions into said grooves;

second means movably mounted externally of said parallel guide paths to engage outer portions of said coils; and

third means for causing said second means to engage said outer portions when said pusher initiates advancing of said inner portions and for moving said second means to advance said outer portions to said core structure.

4,383,361

CONNECTOR INSERTION TOOL

Jon F. Kautz, Camp Hill, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

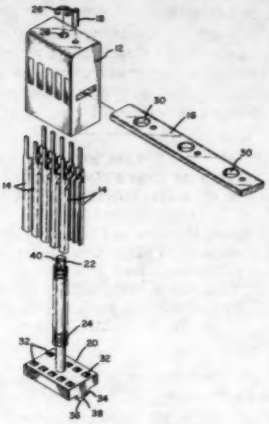
Filed Sep. 17, 1981, Ser. No. 303,280

Int. Cl.³ H01R *43/00*

U.S. Cl. 29—739 **3 Claims**

1. An improvement to a tool (10) for mounting a connector (48) having contacts (52) with contact pins (50) onto a printed circuit board (46), said tool (10) comprising a housing 12 containing a plurality of depending push pins (14) arranged in identical spacing as the contacts (52), said improvement comprising a vertically sliding shaft (22) in the housing (12) with a guide block (20) attached to the free end of the shaft (22) below the housing (12), said guide block (20) having a plurality of holes (32) extending vertically therethrough with the holes (32) being arranged to conformably receive the push pins (14) therethrough so that as the guide block (20) is placed on top of the connector (48) the push pins (14) are guided by the holes

(32) in said guide block (20) into the connector (48) to engage contact shoulders (64) against which an insertion force is applied by the tool (10) to drive the contact pins (50) into holes (54) in the circuit board (46).



4,383,362

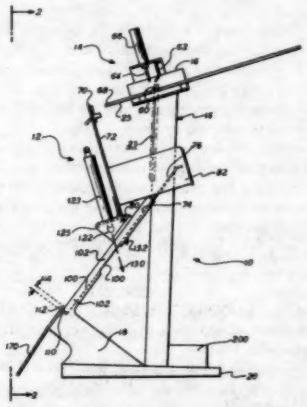
APPARATUS FOR OPENING AND CLOSING THE CLAMPING MEMBERS OF A HANGER

Ronald S. Graniero, 1090 Ocean Ave., Elberon, N.J. 07740, and John S. Truglia, 55 Wittenberg Ct., Oceanport, N.J. 07757

Filed Mar. 6, 1981, Ser. No. 241,225

Int. Cl.³ B23P 9/00

U.S. Cl. 29—822 **5 Claims**



1. An apparatus for opening the clamping members of a clothing hanger to enable a user to insert a garment between said clamping members and for subsequently closing said clamping members, comprising:

means for holding said hanger in substantially a predetermined position;

means secured to said holding means for opening said clamping members to enable said garment to be inserted therebetween while said hanger is held in said predetermined position;

means secured to said holding means for closing said clamping members whereby any garment inserted therebetween will be clamped therebetween.

4,383,363

METHOD OF MAKING A THROUGH-HOLE CONNECTOR

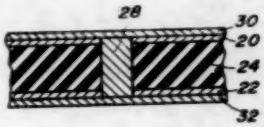
Masao Hayakawa, Kyoto; Takamichi Maeda, Yamatokoriyama, and Mitsuo Oda, Osaka, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Division of Ser. No. 937,759, Aug. 29, 1978, abandoned. This application Jun. 27, 1980, Ser. No. 163,634

Claims priority, application Japan, Sep. 1, 1977, 52-107705

Int. Cl.³ H05K 3/02

U.S. Cl. 29—847 **8 Claims**



1. A method of making a through hole connector in an insulator circuit board substrate adapted to carry wiring patterns on both major surfaces thereof comprising the steps of:

providing an insulator substrate;

providing a reservoir of conductive paste adjacent said insulator substrate;

forming a through hole in said substrate between said major surfaces by penetrating said insulator substrate through the use of a penetrating means from the side of said substrate opposite said reservoir of conductive paste;

continuing the penetration of said penetrating means through said formed through hole and dipping said penetrating means into said reservoir of conductive paste, and withdrawing said penetrating means from said reservoir and said through hole to thereby deposit conductive paste in said through hole to form a through hole connector;

forming conductive bridge layers on both of the major surfaces of said insulator substrate subsequent to the formation of said through hole and the deposition of said conductive paste therein in such a manner as to form substantially flat surfaces extending across substantially the entirety of each major surface of said substrate and across said through hole so that both end portions of said through hole connector are covered by and make direct contact with said conductive bridge layers; and

etching said conductive bridge layers so as to form wiring patterns on both of the major surfaces of said insulator substrate electrically connected through said through hole connector.

4,383,364

METHOD FOR TERMINATING FLAT CABLE

Daniel T. Casey, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Division of Ser. No. 122,539, Feb. 19, 1980, Pat. No. 4,335,497. This application Mar. 11, 1981, Ser. No. 242,744

Int. Cl.³ H01R 43/04

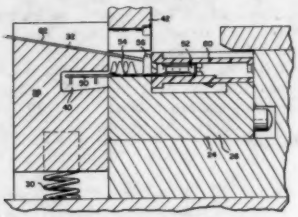
U.S. Cl. 29—863 **2 Claims**

1. A method of terminating multi-conductor flat flexible cable comprising:

gang loading a strip of terminals partially into a connector housing, said strip of terminals being formed by a plurality of terminals connected to extend normal to a like marginal edge of a carrier strip with each terminal having a crimp portion attached to said carrier strip, an intermediate tine extending normal to the axis of the terminal and a mating portion directed away from said carrier strip, said crimp

portions of each said terminal being exposed from said connector housing in said partially loaded condition, said terminals being stabilized and prevented from full insertion into said connector housing by said intermediate tine;

applying a multi-conductor cable to the crimp portions of said terminals and against said intermediate tines;



simultaneously severing said terminals from said carrier strip while crimping them to respective conductors of said cable and curling said intermediate tines downwardly to be free of said connector housing; and

subsequently fully inserting the crimped terminals into the connector housing.

4,383,365

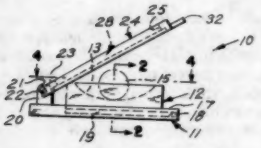
EGG SLICER WITH INTERCHANGEABLE COMPONENTS

Michael J. Metzigian, 10 Haverhill Ct., Ann Arbor, Mich. 48105

Filed Jun. 1, 1981, Ser. No. 269,269

Int. Cl.³ A21C *5/08*

U.S. Cl. 30—114 **4 Claims**



1. An egg slicer with interchangeable components, comprising, in combination, a base, a plurality of interchangeable support members selectively mounted upon said base, said base including dove tail means and a recess thereupon for seating a selected said support member, each one of said support members being specifically shaped upon its upper side for supporting a particular article of food to be sliced, and a frame snapped at one end in notched legs formed on one end of said base, said frame being pivotable thereon for swinging down across said selected support member, and said frame having a central opening fitted with an interchangeable, frame-shaped blade member having a wire grid affixed therein, that selectively mates with said selected suppport member.

4,383,366

BLADE DRIVING ASSEMBLY FOR HAIR CLIPPER

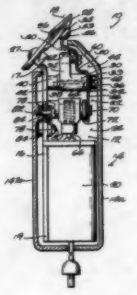
Matthew L. Andis, Racine, Wis., assignor to Andis Company, Racine, Wis.

Filed Oct. 20, 1980, Ser. No. 198,708

Int. Cl.³ B26B *19/28*

U.S. Cl. 30—221 **13 Claims**

1. A drive assembly for operatively connecting a cutting blade with an electric motor having a rotatable output shaft, said drive assembly comprising a frame, a driven assembly rotatable on said frame about a first axis fixed relative to said frame and including a tension spring and means on said tension spring for engaging the cutting blade to effect reciprocal movement of the cutting blade in response to oscillation of said driven assembly about said axis, and drive means including a component supported by said frame for rotation about a second axis fixed relative to said frame in spaced relation to said



first axis and operatively connected between said driven assembly and said output shaft for oscillating said driven assembly about said first axis to impart reciprocal movement to said cutting blade engaged by said tension spring in response to rotation of said output shaft.

4,383,367

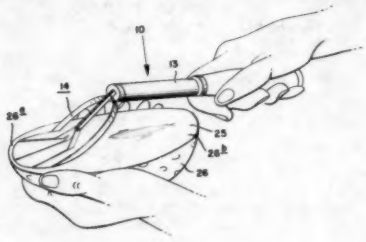
POTATO SCOOP

Joseph Mielnicki, Wilmington, Del., assignor to Alco Foodservice Equipment Company, Miami, Fla.

Filed Nov. 27, 1981, Ser. No. 325,328

Int. Cl.³ B26B *3/00*

U.S. Cl. 30—279 R **7 Claims**



1. A tool for use on a partially-baked half of a potato for separating the meat of the potato from its skin and simultaneously cutting the meat into separate chunks, comprising:

a handle,

shaped cutting edge means mounted at one end of said handle and extending laterally at an obtuse angle with respect thereto,

said cutting edge means including:

a central blade having a stem connected at one end to said handle and extending away therefrom,

a pair of blades diverging from said central blade at an acute angle with respect thereto and at a location spaced from said handle about midway of the length of said central blade, and

an arcuate blade having a hoop-shaped form connected to said pair of blades and said central blade remote from said handle and returning to said handle for cooperating with said diverging and central blades to form therebetween a pair of segments of a predetermined cross-section,

so that when the tool is gripped in one hand and the potato

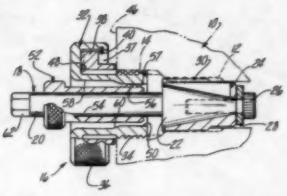
half in the other, the blades can be engaged with and drawn through the potato for cutting the meat thereof into separate chunks.

4,383,368

CONCENTRICITY GAGE

Longine V. Morawski, 1497 Boston Blvd., Detroit, Mich. 48206, and Lawrence V. Morawski, 38255 Fairway Ct., Mt. Clemens, Mich. 48044

Filed Sep. 21, 1981, Ser. No. 303,918
Int. Cl.³ G01B *5/25*
U.S. Cl. 33—174 Q **14 Claims**



1. A gage for checking the concentricity between two axially spaced bores in a workpiece comprising an expandable collet dimensioned to be received in one of said bores, a mandrel having a cylindrical shaft and an expander at one end thereof, said expander being accurately concentric to the longitudinal axis of the shaft and adapted to engage the collet to expand the same into firm and close fitting engagement with said one bore so that the axis of the shaft is accurately concentric with the axis of said one bore, a plug having an outer peripheral surface dimensioned to have a close fit in the other bore, said plug having a central axial bore therein accurately concentric with said outer peripheral surface and a gage bushing having a close sliding fit on said shaft, said gage bushing having an outer peripheral portion which, when the bushing is rotated on the shaft, defines a circle of revolution having a diameter less than the diameter of the bore in the plug by an amount corresponding to substantially twice the concentricity tolerance to be checked by the gage.

4,383,369

KNIFE ALIGNMENT SENSOR

Herbert H. Newton, 1900 Emerson Ave., Louisville, Ky. 40205

Filed Apr. 15, 1982, Ser. No. 368,810
Int. Cl.³ B27G *23/00*
U.S. Cl. 33—185 R **11 Claims**

1. A knife alignment sensor device for aligning one or more adjustably disposed working edges or surfaces provided on a movable working head of a power tool relative to a fixed position site on the power tool where there is an electrically conductive path between each edge or surface that is to be adjusted and the fixed position site,

said device comprising:

a housing having a side with planar exteriorly exposed surface means including a first portion of a first electrically conductive contact means covering less than all of said side, and a forward end and a rear end;

said planar exteriorly exposed surface means of said side further including a second electrically conductive contact means adjacent said rear end of said housing and electrically insulative means isolating said first and second electrically conductive contact means;

said housing including means defining a cavity constructed and arranged to contain an electrical power supply battery means having two terminals;

two respective terminal connectors housed within said cavity;

a third electrically conductive contact means is the form of an elongated rod-like member having a base and a tip;

said housing forward end having thereon a forwardly presented second portion of said first electrically conductive contact means;

means mounting the base of the third electrically conductive contact means on the forward end of the housing so as to cantilever the third electrically conductive contact means from the housing to project the tip thereof forwardly of the forward end of the housing;

means electrically isolating the first from the third electrically conductive contact means through the housing;

first electrical conductor means electrically connecting the first electrically conductive contact with one of the two battery terminal connectors;

second electrical conductor means electrically connecting the second and third electrically conductive contacts in parallel with one another to the other of the two battery terminal connectors; and

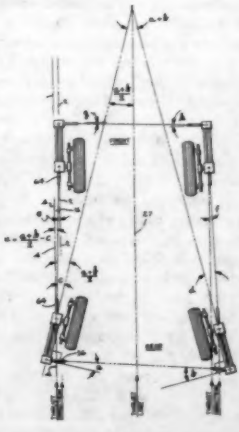
at least one signal-emitting member incorporated in one of said electrical conductor means, so that only when a battery is connected to said two battery terminal connectors, one said portion of the first electrically conductive contact means is engaged with said fixed position site on the power tool, and either of the second and third electrically conductive contact means is engaged with a said working edge or surface of said power tool does said at least one signal-emitting means emit a respective signal.

4,383,370

WHEEL ALIGNMENT SYSTEM AND METHOD

Victor B. Van Blerk, San Jose, and Donald B. Curchod, Saratoga, both of Calif., assignors to Nortron Corporation, Sunnyvale, Calif.

Filed Jun. 25, 1979, Ser. No. 51,804
Int. Cl.³ G01B *11/26*
U.S. Cl. 33—203.18 **12 Claims**



1. In a wheel alignment system for a vehicle of a type having a laterally spaced pair of unsteered wheels and a thrust line, a system for detecting the thrust line of the vehicle comprising, in combination: a pair of transducer support assemblies, each including an elongated means, carried from one end by and

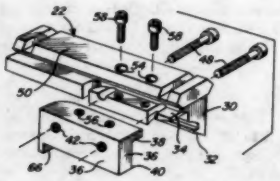
disposed to extend alongside an associated one of said unsteered wheels to a position at a substantially common predetermined distance beyond the unsteered wheels; means defining a first straight line between a distal end of each of said pair of said elongated means; detecting means, in each of said transducer support assemblies, for establishing a second straight line normal to a mid-plane of each of said unsteered wheels and for establishing a measured angle at each of said unsteered wheels, each of said measured angles defined between said first straight line and said second straight line; and computing means for determining said thrust line of said vehicle by computing one-half of a sum of said measured angles.

4,383,371

SCOPE MOUNT FOR HANDGUN

Fred W. Coffey, 4433 Crawford #6, Abilene, Tex. 79605

Filed Jan. 29, 1982, Ser. No. 344,003
Int. Cl.³ F41G 3/00
U.S. Cl. 33—245 8 Claims



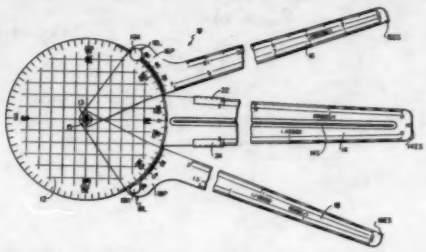
1. In combination with a handgun of the revolver type including an elongated upper front-to-rear extending rear frame portion beneath which a cartridge cylinder is closely mounted for rotation about a front-to-rear extending axis and for swinging laterally outwardly to one side of said frame portion and with said handgun further including a rearwardly facing surface portion spaced below said upper rear frame portion and spaced slightly forward of said cylinder; a scope mount including an elongated body disposed over and extending along said upper rear frame portion and defining first and second longitudinal sides extending along said one side and the other side, respectively, of said upper rear frame portion, said second side including a depending flange extending therealong and terminating downwardly in a first inwardly directed lip engaged under said other side, said first side of said body including a depending retainer member extending therealong and having a lower second inwardly directed lip engaged beneath said one side of said upper rear frame portion, said second lip being bevelled for camming engagement beneath said one side, the upper portion of said retainer member and said first side of said body including coacting projection and recess portions loosely engaged with each other supporting said retainer member from said first side of said body for lateral shifting relative thereto and limited relative up and down movement, first threaded fastener means connected between said body and retainer member adjustably drawing the latter laterally of said body toward said depending flange and second fastener means connected between said body and retainer member adjustably drawing said retainer member upwardly relative to said body.

4,383,372

INSTANT POSITION FINDER AND COURSE PLOTTER

Anthony J. Zane, 3011 NW. Second Ave., Pompano Beach, Fla. 33064, and Frederick C. Bearer, 3100 Riverside Dr., Apt. 206, Coral Springs, Fla. 33065

Division of Ser. No. 4,571, Jan. 18, 1979, Pat. No. 4,245,393. This application Sep. 25, 1980, Ser. No. 190,745
Int. Cl.³ G01C 3/00
U.S. Cl. 33—276 10 Claims



1. A flat rigid instant position finder and course plotter comprising:

a flat rigid base member for juxtapositioning in direct coplanar relationship with a navigational chart including an outwardly projecting fixed central arm, said base member being constructed of a transparent material and including a center grid inscribed thereon for aligning said base member with an appropriate meridian or parallel on a navigational chart, said outwardly projecting fixed central arm including a slit therethrough extending from said base member to a point adjacent to the outer extremity of said central arm and said outwardly projecting fixed central arm further including nautical mile measuring scales inscribed thereon;

an end sight mounted adjacent an outer end of said fixed central arm;

a central sight removably mounted through an opening in said base member;

a rigid left arm movably mounted on said base member about said central sight and including an end sight mounted adjacent an outer end of said left arm;

a first locking means for releasably securing said left arm to said base member;

a rigid right arm movably mounted on said base member about said central sight and including an end sight mounted adjacent an outer end of said right arm; and

a second locking means for releasably securing said right arm to said base member;

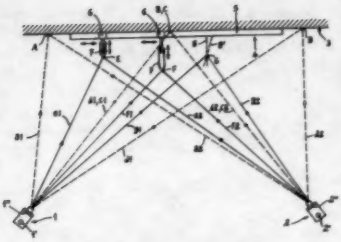
wherein an object may be aligned with said fixed central arm by sighting along said central sight and the end sight mounted on the fixed central arm, a second object may be aligned with said left arm by sighting along said central sight and the end sight mounted on the left arm, rotating the left arm about said central sight to properly align with said second object and securing said left arm relative to said base member by means of said first locking means, and a third object may be aligned with said right arm by sighting along said central sight and the end sight mounted on the right arm, rotating the right arm about said central sight to properly align with said third object and securing said right arm relative to said base member by means of said second locking means, thereafter said central sight may be removed and said flat rigid instant position finder may be juxtapositioned in direct coplanar relationship with a navigational chart being aligned with the adjoining sighted objects to determine the exact location of an individual which would correspond to the position of said opening in said base member positioned on the navigational chart.

4,383,373

METHOD OF AND APPARATUS FOR CALIBRATING AN ADJUSTABLE JIG

Alain Couturier, "Le Taureau" Chemin du Pivolet, Chaponost (Rhone), France

Filed Oct. 7, 1981, Ser. No. 309,478
Claims priority, application France, Oct. 8, 1980, 80 21872
Int. Cl.³ G01C 15/00; G01B 11/03
U.S. Cl. 33—286 7 Claims



6. An apparatus for calibrating an adjustable jig with independently adjustable markers having tips indicative of the correct relative positions of characteristic points of a structure to be put into shape, comprising:

a pair of projectors adapted to emit divergent light rays from respective image carriers with respective patterns of bright first dots representing correlated images, viewed from different angles, of characteristic points of a prototype of the structure to be shaped; and

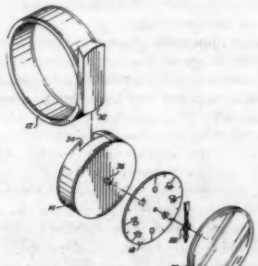
a reference surface confronting said projectors and bearing a plurality of fixed spots, said pattern further including bright second dots representing correlated images of said fixed spots from which light rays emitted toward said reference surface coincide at the respective spots upon a correct presetting of said projectors, the jig to be calibrated being positionable in front of said reference surface for alignment of its marker tips with the intersections of corresponding pairs of correlated rays emitted from said first dots.

4,383,374

DEVICE TO DETERMINE HAIR CUTTING ANGLE

Anthony J. Bertero, 2434 Shade Tree La., Tucson, Ariz. 85715

Filed Jan. 5, 1981, Ser. No. 222,575
Int. Cl.³ G01C 9/12
U.S. Cl. 33—373 2 Claims



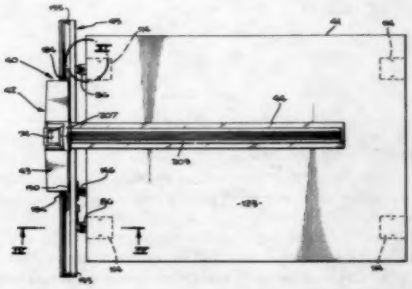
1. A device to be worn on a finger of a hair stylist for determining hair cutting angle comprising an annular ring adapted to be worn upon the hair stylist's finger, said ring having an elongated tongue attached tangentially at its periphery in the plane of said ring; a case attached to said ring, said case having a first and second parallel flat circular surface and a rod protruding perpendicularily from the center of said first circular surface, and said second circular surface defining a groove formed into said circular surface adapted to receive said annular ring elongated tongue in sliding relationship; a dial attached to said case first circular surface; a gravity seeking weighted pointer pivotally attached to said case protruding rod; and a transparent lens attached to said case covering and protecting said dial and said pointer whereby the hair stylist may slidably adjust the position of the device upon a finger and slidably adjust said case with respect to said ring via said tongue and groove in order that a section of hair may be spread linearly between two adjacent straight extending fingers for cutting the hair parallel to the extended fingers, and the relative position of the weighted pointer pointing down and the dial is indicative of the angle the hair is cut.

4,383,375

DRAFTING APPARATUS

Frank S. Avella, Irvine, and Charles Matthews, San Clemente, both of Calif., assignors to Plan Hold Corporation, Irvine, Calif.

Filed Mar. 5, 1981, Ser. No. 240,852
Int. Cl.³ B43L 13/02
U.S. Cl. 33—437 28 Claims



1. A drafting apparatus for use with a drawing board having a side edge portion and a planar drawing surface comprising, in combination:

guide track means mounted on said board in spaced relation to said side edge portion;

a strip of magnetic material carried by said guide track means and extending longitudinally thereof;

T-square means having a head body member and a blade member arranged in 90° relation;

means on said head body member cooperable with said guide track means for movement of said T-square means along said guide track means;

said cooperable means including magnet means carried in said head body member and cooperable with said strip of magnetic material for holding said T-square means in a selected position;

and means on said head body member pivotally mounting said magnet means about a longitudinal axis parallel to said side edge portion for release of said magnet means from a holding position.

4,383,376

CONTACT-DEHYDRATING SHEET FOR DRYING PROTEIN-CONTAINING FOOD

Yukio Numamoto, Kunitachi, and Juichi Kasai, Tokyo, both of Japan, assignors to Showa Denko Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 18, 1981, Ser. No. 235,688
Int. Cl.³ F26B 5/16, 19/00
U.S. Cl. 34—9 10 Claims

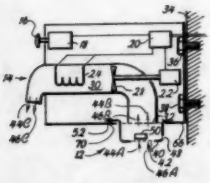
1. A contact-dehydrating sheet for drying protein-containing food comprising:
(a) a water-permeable film;
(b) a dehydrating layer consisting essentially of a water absorbing polymer substance dispersed in a hydrophilic adhesive substance selected from the group consisting of hydrophilic polysaccharides and the chemically modified product thereof and synthetic hydrophilic adhesive substances, said layer being placed on the surface, opposite to the surface where the protein-containing food to be dried is contacted, of the water-permeable film; and
(c) a protective film covering over the dehydrating layer.

4,383,377

HOT AIR DRYER ROOM DEODORIZER

Thomas W. Crafton, 7661 Charlotte Ave., Nashville, Tenn. 37209

Filed Nov. 19, 1980, Ser. No. 208,188
Int. Cl.³ F26B 21/14
U.S. Cl. 34—60 2 Claims



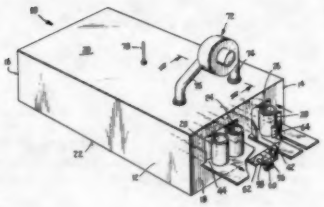
1. A combination room deodorizer and hot air hand dryer comprising:
a housing dedicated to containing said hot air hand dryer, and defining an air intake port and an air exhaust port;
electrical means permanently secured and located in said housing for heating air flowing therethrough;
air moving means permanently secured in said housing for drawing air into said housing through said intake port, past said means for heating, and exhausting heated air from said housing through said exhaust port for drying hands;
electrical driving means permanently secured in said housing for driving said air moving means;
electrical switching means operable from outside said housing for providing electrical energy to said electrical driving means;
container means detachably secured outside of said housing and juxtaposed said intake port of said housing, said container means defining an opening having selected cross-sectional dimensions so as to prevent the insertion of foreign objects; and
a vaporizable deodorizer having initial cross-sectional dimensions substantially the same as said selected cross-sectional dimensional of said opening and located in said container means such that air is drawn past said deodorizer prior to entering said intake port, and heated air containing vapor from said deodorizer is exhausted through said exhaust port for drying hands and deodorizing the surrounding environment.

4,383,378

SECONDARY DRYER FOR FREE WATER DETECTOR PADS

Harry A. Lockwood, 5 Deepwood La., Westport, Conn. 06880

Filed Mar. 2, 1981, Ser. No. 239,265
Int. Cl.³ F26B 15/12
U.S. Cl. 34—68 12 Claims



1. A drying oven for subjecting open containers of water detector pads to a secondary drying operation, comprising in combination:
(a) an elongate enclosure providing a pair of elongate channels disposed side by side and having open outer-most ends and blind inner-most ends,
(b) said channels extending from one end of the enclosure where they are open, to a point located adjacent the other end of the enclosure where they are blind,
(c) means providing heat to raise the temperature within the enclosure and to expel moisture therefrom,
(d) said channels having tracks with which the containers are engageable and along which they can travel,
(e) one of said channels being adapted to hold a plurality of said containers in single file whereby the containers can be moved, starting from an at-rest position, along said channel from the open end thereof to the blind end thereof by a pushing force,
(f) means including a powered pushing device for providing said pushing force to the end one of said containers of said single file at the open outer-most end of said one channel, thereby to advance all of the containers of the single file toward the blind end of the channel, and
(g) a 180° stationary transfer guide structure comprising spaced-apart opposed walls interconnecting the blind ends of the channels, providing for transfer of said containers from the said one channel to the other channel at the said blind ends in response to the pushing of the said powered pushing device.

4,383,379

MACHINE FOR DRYING AND MIXING GRANULAR MATERIALS

Arthur C. Avril, P.O. Box 17087, Cincinnati, Ohio 45217

Filed Feb. 6, 1981, Ser. No. 231,989
Int. Cl.³ F26B 25/16, 11/04
U.S. Cl. 34—128 4 Claims

1. An apparatus for drying a first and second material comprising:
a first rotatable cylinder having first and second ends;
a second cylinder, said second cylinder having third and fourth ends, said third and fourth ends being respectively adjacent said first and second ends;
main support assembly means mounted on said second cylin-

der at end portions of the second cylinder and supported in said first cylinder for supporting said second cylinder within and substantially coaxially with said first cylinder;

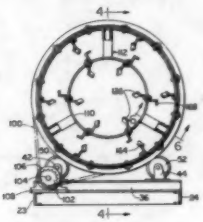
a means for rotating said cylinders, the means for rotating said cylinders comprising a sprocket ring on said first cylinder, a motor, said motor having an output shaft, a sprocket gear on said output shaft, and a chain engaging with said sprocket ring and said sprocket gear;

a means for introducing a moist first material into said third end of said second cylinder;

a means for heating said moist first material;

a means for moving said first material through said second cylinder and out said fourth end of said second cylinder and into said second end of said first cylinder in a continuous stream and for lifting said first material such that said first material falls onto the interior surface of said second cylinder, said means for moving said first material through said second cylinder comprising a plurality of impellers spaced radially about the interior of said second cylinder and extending longitudinally thereof;

a means for introducing a moist second material into said second end of said first cylinder;



means for moving said first and second materials through said first cylinder in a direction opposite to the flow of said first material in said second cylinder and for lifting said first and second material such that said first and second materials fall downwardly whereby said first and second materials are dried in a continuous operation, said means for moving said first and second materials through said first cylinder comprising a plurality of impellers spaced radially about the interior of said first cylinder and extending longitudinally thereof, a plurality of resilient support assemblies spaced radially about the interior of said first cylinder spaced between the end portions of the second cylinder, each of said support assemblies being housed inside the first cylinder and including a first telescoping member attached to the interior of the first cylinder, the first cylinder being imperforate at the support assemblies, a second telescoping member attached to the exterior of the second cylinder and spring means urging the telescoping members toward extended position, thereby allowing said second cylinder to expand and contract spaced from the end portions thereof.

4,383,380

EARTH MOVING SCRAPER

Richard B. Miskin, P.O. Box 218, Ucon, Id. 83454

Filed Oct. 1, 1981, Ser. No. 307,492
Int. Cl.³ E02F 5/00
U.S. Cl. 37—129 **4 Claims**

1. In an earth moving, ground leveling and land planing machine having a frame supported by at least two ground engaging wheels at the back end of the frame; a cutting blade disposed laterally between the opposite, longitudinal sides of said frame and adjacent to the bottom of said frame, with the blade positioned so that at least the forward cutting edge thereof is disposed below the bottom of said frame; a bucket having a floor and upstanding back and side walls, said bucket being disposed with the forward edge of said floor thereof adjacent to said blade, with said bucket being adapted to pivot about an axis through the forward edge of said floor thereof; means for pivoting the bucket from a lowered carrying position in which said floor is substantially horizontal to an elevated dumping position in which said floor is in a forwardly tilted position and vice versa; and a vertically movable apron forming an operable front wall for said bucket, an improvement in the means for pivoting said bucket comprising:

at least one hydraulic ram pivotally attached at one end

thereof to said frame near the bottom of said frame at a point along the longitudinal length of the frame which is between about the midpoint and the back edge of the floor of said bucket when said bucket is in the lowered carrying position,

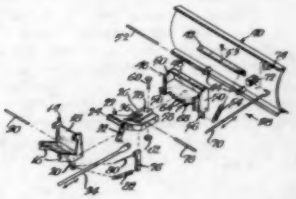
means pivotally connecting the other end of said hydraulic ram to said bucket near the back upper edge corner thereof, whereby the hydraulic ram lifts and pivots the bucket with minimal shear forces exerted at the axis about which the bucket pivots.

4,383,381

DOZER BLADE MOUNTING ARRANGEMENT

James L. Wirsbinski, Marshfield, Wis., assignor to J. I. Case Company, Racine, Wis.

Filed Jul. 10, 1981, Ser. No. 281,986
Int. Cl.³ E01H 5/06
U.S. Cl. 37—283 **12 Claims**



1. A dozer blade mounting arrangement for a tractor, comprising:

a frame support adapted to be fixedly mounted on said tractor,

a blade mount pivotally supported by said frame support for movement about a horizontal axis between raised and lowered positions,

means for moving said blade mount between said raised and lowered positions,

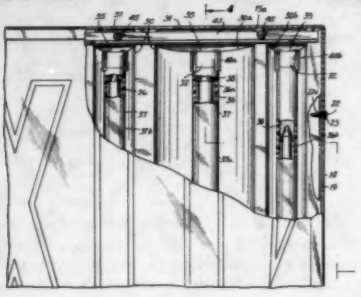
a blade assembly supported and movable with said blade mount, said blade assembly being pivotally connected to said blade mount for movement about a blade axis which is generally vertically disposed when said blade mount is in said lowered position, and

blade lock means operatively connected with and extending between said blade mount and said frame support for preventing movement of said blade assembly about said blade axis when said blade mount is in the lowered position and allowing movement of said blade assembly about said blade axis only when said blade mount is in the raised position.

4,383,382
SELF-LUMINOUS SAFETY SIGN

William Hegarty, New Rochelle, N.Y., assignor to Self-Powered Lighting Inc., Elmsford, N.Y.

Filed Oct. 1, 1980, Ser. No. 192,792
Int. Cl.³ G08B 7/00; G09F 13/26
U.S. Cl. 40—545 22 Claims



1. A safety sign manufactured for use by a consumer comprising a housing adapted to support either of at least a first and second legend-bearing means, said first legend-bearing means having at least one character for illumination thereon and being removably securable in said housing by said consumer, self-luminous lighting means for illuminating said at least one character on said first legend-bearing means when said first legend-bearing means is secured in said housing, said self-luminous lighting means including a radioactive gas and container means in which said gas is sealed, said self-luminous lighting means further including an impact-resistant sleeve means in which said container means is selectively mounted, and securing means for selectively and adjustably securing said lighting means in said housing in a first position so that said at least one character on said first legend-bearing means is illuminated by said lighting means, said securing means allowing for the consumer to reposition said lighting means in said housing to illuminate a character on said second legend-bearing means in a different position than said at least one character on said first legend-bearing means when said first legend-bearing means is removed from said housing and replaced by said second legend-bearing means by said consumer.

4,383,383
FIRING MECHANISM FOR SINGLE ACTION FIREARM

Archie C. Landry, Canoga Park, Calif., assignor to North American Manufacturing Corp., Provo, Utah

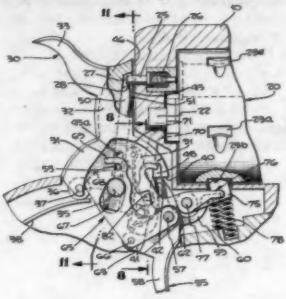
Division of Ser. No. 98,870, Nov. 30, 1979, Pat. No. 4,316,341.
This application Nov. 2, 1981, Ser. No. 317,460
Int. Cl.³ F41C 1/00
U.S. Cl. 42—67 1 Claim

1. In a fire arm having a frame, a cylinder revolvable on the frame, a cylinder latch, spring means normally holding the latch in engagement with the cylinder, a hammer mounted on the frame and having cocked and forward positions, and spring means biasing the hammer to its forward position; improved means for disengaging the cylinder latch whenever the hammer is cocked, comprising:

a latch cam pivotally mounted on the frame, having one end secured to the cylinder latch, and having another end extending beside the hammer and pivotally movable in a plane parallel to the plane in which the hammer is movable;

a cam button carried in a lateral hole in the hammer and normally extending into said movement plane of said latch cam, said other end of said latch cam having a shoulder which in the forward position of the hammer extends across the movement path of said button, whereby when the hammer is moved towards its cocked position said button engages said shoulder and pivots said latch cam against the force of said latch spring so as to disengage said latch;

a retaining spring carried on the hammer on the side thereof opposite said latch cam and normally urging said cam button to extend into the plane of said latch cam;



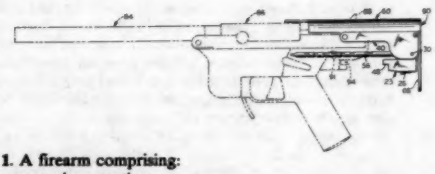
and

said cam button having a sloped surface which engages said latch cam shoulder, so that as the hammer moves to its fully cocked position said button is retracted laterally against the force of its retaining spring and out of the plane of said latch cam and then slides along a side surface of said latch cam.

4,383,384
FOLDING STOCK FOR FIREARMS AND FIREARMS EMPLOYING SAME

Gerard J. Fox, Meriden, Conn., assignor to Dean Machine Products, Inc., Manchester, Conn.

Filed Dec. 3, 1980, Ser. No. 212,542
Int. Cl.³ F41C 23/00
U.S. Cl. 42—72 11 Claims



1. A firearm comprising:

a. a receiver portion;

b. a barrel extending from one end of said receiver portion; and

c. a foldable stock assembly on the other end of said receiver portion and including:

(i) an elongated pivot arm;

(ii) pivot means detachably secured to said other end of said receiver portion and pivotably mounting one end of said pivot arm on said receiver portion for movement between a first position in which said pivot arm extends away from said other end of said receiver portion and a second position in which said pivot arm extends towards said barrel; and

(iii) a butt member including an elongated stock portion and a butt-plate portion at one end thereof, said stock portion being pivotably mounted on said pivot arm adjacent the other end of said pivot arm for pivoting between a first position in which said stock portion extends away from said receiver portion and rear-

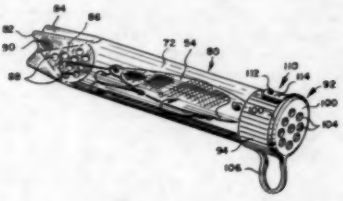
wardly of said pivot arm when said pivot arm is in its first position and a second position in which it extends longitudinally of said firearm along the upper surface of said receiver portion when said pivot arm is in its second position, said one end of said butt member being disposed rearwardly of said receiver portion in either position thereof, said butt portion extending at an angle to the longitudinal axis of said stock portion to bear against the body of a user when said butt member is in either of said pivoted positions.

4,383,385

LURE CONTAINER

Wayne A. Myers, Stanton La., Pawcatuck, Conn. 06379

Filed Apr. 13, 1981, Ser. No. 253,870
Int. Cl.³ A01K 97/06
U.S. Cl. 43—57.1 **11 Claims**



1. Apparatus for containing and dispensing fishing lures comprising:

a tubular member of pliable material having a longitudinal axis and an outer surface and upper and lower ends, said lower end being open and defined by a continuous rim, said upper end distant from said lower end including an end portion having perforations extending therethrough and positioned generally transversely of said longitudinal axis and a pair of integral fins lying in planes generally transversely of each other and to the plane of said end portion and intersecting in a line generally parallel to said longitudinal axis, one of said fins having means for externally mounting said tubular member; and

closure means on said tubular member adjacent said rim including a cap having a continuous outer edge and perforations extending therethrough; hinge means mounting said cap on said tubular member for selective movement between an open position distant from said rim and a closed position generally contiguous with said rim; and means for releasably holding said cap in the closed position generally contiguous with said rim.

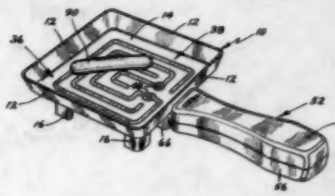
4,383,386

TOY SKILLET AND KNIFE HAVING SIMULATED SOUND-PRODUCING CAPABILITIES

George P. Giordano, Cincinnati; Maximino Almanza, Fairfield; Allen F. Eberts, and William R. La Dow, both of Cincinnati, all of Ohio, assignors to CPG Products Corp., Minneapolis, Minn.

Filed Feb. 6, 1981, Ser. No. 232,331
Int. Cl.³ A63H 3/52, 33/26
U.S. Cl. 46—14 **43 Claims**

1. A toy skillet comprising battery power supply means, electric sound-producing means for providing a sound simulating the frying of food, a bottom wall of dielectric material providing a simulated flat cooking surface on its upper side, first means including a grid composed of a pair of spaced electrically conductive strip members on said cooking surface in circuit with said power supply means and said sound-producing means, said grid extending over substantially all of said simulated cooking surface and said electrically conductive strip members comprising said grid normally having a sufficient amount of electrical resistance therebetween to prevent energization of said sound-producing means, and second means relatively movable with respect to said electrically conductive strip members, said second means including a deformable modeling compound which is sufficiently conductive to cause energization of said sound-producing means when one portion of said deformable modeling compound has been manually



engaged with any portion of one of said electrically conductive strip members and another portion of said deformable modeling compound has been manually engaged with any portion of the other of said electrically conductive strip members to complete an electrical path between said electrically conductive members to cause energization of said sound-producing means and thus provide said sound simulating the frying of food.

4,383,387

TWIRLING BATON

Frank J. Puskar, 107 Elm Rd., Pittsburgh, Pa. 15239

Filed Jul. 30, 1981, Ser. No. 287,093
Int. Cl.³ A63H 1/32; G09B 15/02
U.S. Cl. 46—47 **4 Claims**

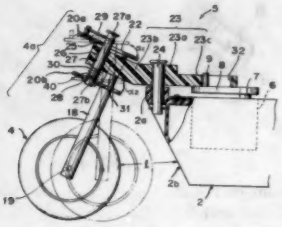
1. An adjustable balanced twirling baton comprising an elongated hollow cylindrical main shaft, a short hollow internally threaded tubular extension shaft at one end of said main shaft, a first threaded adjusting rod internally received by and connecting together said shafts, a longer internally threaded tubular extension shaft at the other end of said main shaft, a second threaded adjusting rod internally received by and connecting together said main shaft and said longer extension shaft, said main shaft having a frusto-conical mating surface on each end, a frusto-conical mating surface on one end of each extension shaft to mate with the respective mating surface at the ends of said main shaft, a fixed bushing on one end of each of said adjusting rods slidably received within said main shaft, an adjustable bushing threadedly mounted on a central portion of each of said adjusting rods and slidably received within the respective extension shafts, an internally threaded locking device threadedly mounted on the free end of each adjusting rod to secure said extension shafts in abutting contact with the respective ends of said main shaft, a resilient ball mounted on the free end of said longer extension shaft and a smaller resilient tip mounted on the free end of said short extension shaft.

4,383,388

TOY REMOTE-CONTROL MOTOR BICYCLE

Yoshio Suimon, Tokyo, Japan, assignor to ICD Corporation, Tokyo, Japan

Filed Mar. 16, 1981, Ser. No. 244,403
Claims priority, application Japan, Nov. 26, 1980, 55-168389[U]
Int. Cl.³ A63H 30/04, 17/26
U.S. Cl. 46—254 3 Claims



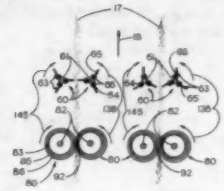
1. In a toy, remote-controlled, motor-driven bicycle including an elongated chassis, a rear wheel rotatably mounted on the rear portion of said chassis, a steerable front wheel rotatably mounted on the front portion of said chassis, a motor for driving said bicycle, power-supply means for operating said motor, remote control means for receiving external signals and controlling the direction of movement of said bicycle in response thereto, a steerable front-wheel support mechanism rotatably supporting said front wheel, means connecting said front-wheel support mechanism to said chassis and adapted for steering said bicycle by effecting steering movement of said front-wheel support mechanism in unison with said front wheel, the improvement which comprises: said front-wheel support mechanism comprises a steering fork having, at its lower end, an axle on which said front wheel is mounted for rotation; an upper support plate and a lower support plate both fixedly mounted on the upper portion of said steering fork in parallel, vertically spaced-apart relation, said upper support plate having a first, centrally located, through-hole which is elongated in the lengthwise direction of said chassis, said upper support plate having a pin projecting upwardly from its upper surface and located in front of the forward end of said first through-hole, said lower support plate having a second, centrally located, through-hole positioned below and in vertical alignment with said first through-hole; said means for effecting steering movement of said front-wheel support mechanism comprising a directional steering arm extending forwardly from the upper side of said chassis at the front end thereof and a first support shaft supporting said steering arm for pivotal movement with respect to said chassis about a vertical axis, the forward end portion of said directional steering arm extending between said plates and having a bore therethrough which is vertically aligned with said first and second through-holes; an upright, second support shaft extending upwardly through said second through-hole, said bore and said first through-hole, said second support shaft having an upper portion projecting above the upper surface of said upper support plate; a first, tension spring connected between said pin and said upper portion of said second support shaft for resiliently yieldably continuously urging said upper portion of said second support shaft to the forward end of said elongated first through-hole, said second through-hole slidably receiving the lower end of said second support shaft so that said second support shaft can pivot forwardly and rearwardly with respect to said lower support plate.

4,383,389

POLLINATING MACHINE

Paul A. Bezzerides, Orosi, Calif., assignor to Dave Vradenburg, Orosi, Calif., a part interest

Filed Oct. 13, 1981, Ser. No. 310,606
Int. Cl.³ A01G 7/00
U.S. Cl. 47—1.41 8 Claims



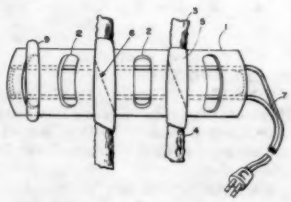
1. A machine for operating on plants growing in a row, the machine comprising a pair of generally cylindrical pressing members, means mounting the members for movement along the row in a predetermined direction and for rotation about individual erect axes spaced transversely of the row, the members having individual facing peripheral portions which are juxtapositioned centrally of the row and one of the pressing members being mounted for movement relative to the other pressing member in a direction transversely of the row; means for rotationally driving the members with such portions moving in a direction opposite said direction, and means for resiliently urging the one member toward the other member to engage such portion of the one member with such portion of the other member so that the plants are engaged between such portions and pressed together thereby transversely of the row as the machine moves therealong.

4,383,390

METHOD AND APPARATUS FOR HOT-CALLUSING GRAFT UNIONS

Harry B. Lagerstedt, Corvallis, Oreg., assignor to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Sep. 10, 1981, Ser. No. 300,784
Int. Cl.³ A01G 1/00
U.S. Cl. 47—6 5 Claims



1. An apparatus for hot-callusing graft unions of plants, comprising

(a) a hollow cylinder having a plurality of laterally extending openings of sufficient size to at least partially enclose the graft unions to be callused and retard the escape of air through said openings when the graft unions are in place, and confine heat to the graft unions; and

(b) means for heating the graft unions within said cylinder.

4,383,391

SEED COATING COMPOSITION BASED ON CARBAMATE PESTICIDE AND NON-ALKALINE AMORPHOUS CARBON

Norman W. Thomas, Somerset, N.J., and Henry A. Terwedow, DuPage, Ill., assignors to Celanese Corporation, New York, N.Y.

Filed Sep. 21, 1981, Ser. No. 303,818
Int. Cl.³ A01C 1/06
U.S. Cl. 47—57.6 14 Claims

1. A continuous, adherent coating composition for seeds comprising:

(a) a first layer in adherent contact with the seed surface containing as the major component by weight thereof, a phytotoxic-protective amount of a particulate activated charcoal of substantially neutral to acidic pH, the charcoal being bound to the seed surface with a binding amount of a non-phytotoxic binder; and,

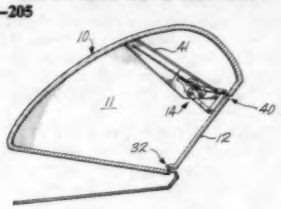
(b) a second layer in adherent contact with the outer surface of the first layer containing a pesticidally effective amount of a carbamate pesticide, the carbamate pesticide being bound to the outer surface of the first layer with a binding amount of a nonphytotoxic binder.

4,383,392

DUAL-CAM GUIDED FOUR-BAR LINKAGE MECHANISM FOR AN OVERHEAD BAGGAGE COMPARTMENT

Richard J. La Conte, Auburn, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Dec. 18, 1980, Ser. No. 217,939
Int. Cl.³ E05D 15/40; E05F 1/00
U.S. Cl. 49—205 4 Claims



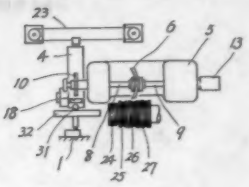
1. A dual-cam guided four-bar linkage mechanism for profiling the hinging operation of a door from an extended closed position to a retracted open position, comprising: a first link fixedly fastened along the door surface; a second link pivotally connected at one end to one end of said first link and having a pivot at the other end fixed to door support structure; a third link pivotally connected at one end to the other end of said first link; a bellcrank pivotally mounted on said second link at a point intermediate the ends thereof and having a first arm forming a fourth link of said four-bar linkage, and said first arm being pivotally connected to the other end of said third link; a first camtrack fixed to door support structure and operatively engaged by a first cam follower mounted to the pivotal connection between said third link and said first arm of said bellcrank; a second camtrack positioned adjacent to said first camtrack and being fixedly mounted to door support structure; said second camtrack being operatively engaged by a second cam follower mounted to a second arm of said bellcrank; said bellcrank interacting between said first and second camtracks for profiling the hinging operation of the door from an extended open position through approximately a right-angular rotation in combination with a translational movement to a retracted open position.

4,383,393

AUTOMATIC LENS GRINDING MACHINE

Takamasa Takubo, No. 15-1, 2-chome,, Hokima, Adachi-ku Tokyo-to, Japan

Filed Feb. 2, 1981, Ser. No. 230,713
Claims priority, application Japan, Feb. 13, 1980, 55-16418
Int. Cl.³ B24B 9/14
U.S. Cl. 51—101 LG 1 Claim



1. An automatic lens grinding machine comprising a head frame having a chuck means for holding and rotating a spectacle lens to be ground, said head frame being adapted to move both axial and radial directions of said spectacle lens, and a group of at least a coarse grinding wheel, a semi-finishing grinding wheel and a finishing grind wheel, an outer surface of said semi-finishing grinding wheel being formed with a circumferential groove with inclined grinding surfaces the width of which is greater than thickness of the spectacle lens at its peripheral edge, whereby an axial center of said spectacle lens can be aligned with that of said semi-finishing grinding wheel by self-alignment action due to the contact of said peripheral edge of said spectacle lens with said inclined grinding surfaces of said circumferential groove of said semi-finishing grinding wheel,

a motor adapted to be selectively operatively connected to said head frame for traversing said head frame and hence said spectacle lens to be ground relative to said grinding wheel group,

an angular position detecting means for detecting an angle of rotation of said spectacle lens,

an axial movement detecting means for detecting an axial movement of said head frame, and

a control means responsive to outputs from said angular position and axial movement detecting means for storing a pattern of axial movement of said head frame due to said self-alignment action as a function of the angular position of said spectacle lens during semi-finishing step by said semi-finishing grinding wheel and, during finishing step by said finishing grinding wheel, controlling said motor so that said pattern of axial movement of said head frame can be reproduced.

4,383,394

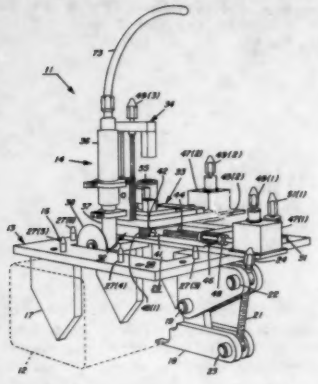
SAMPLE CUTTING DEVICE FOR IRRADIATED COMPONENTS

Frank D. Qurnell, San Jose, and Arthur V. Peloquin, Danville, both of Calif., assignors to General Electric Company, San Jose, Calif.

Filed Dec. 29, 1980, Ser. No. 220,826
Int. Cl.³ B23D 45/02, 47/02
U.S. Cl. 51—241 S 7 Claims

1. A remotely operable device for cutting sample pieces from a radioactive component submerged in a pool of water to provide radiation shielding, said device comprising: a base assembly including a base plate for engaging said component; a clamp arrangement extending from said base plate for removably securing said device to said component; a cutter guide assembly mounted on said base plate; a cutter head including a cutting tool mounted on said guide assembly, said guide assembly including remotely operable guide means for moving said cutting tool into cutting engagement with said component and

for moving said cutter head with respect to said component to thereby make a first cut; means for reorienting said cutter head with respect to said component for making successive cuts in said component at an angle to one another whereby a piece of



said component is cut free as a sample; a plurality of pairs of alignment pins secured to said base plate to define a plurality of alternative positions of said guide assembly on said base assembly, each pair of said alignment pins being adapted to engage a pair of alignment pin receiving holes in said guide assembly.

4,383,395

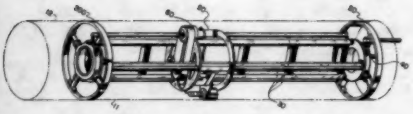
IN-PLACE ROTATING GRINDING MACHINE

John F. Wilger, Honolulu; Gregory S. Nakano, Pearl City; Stephen Orillo, Jr.; Alfred Medrano, both of Mililani Town; Billy D. Sears, Waipahu, and Tadao Uyetake, Honolulu, all of Hi., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jun. 19, 1981, Ser. No. 275,551

Int. Cl.³ B24B *5/40*

U.S. Cl. 51—245 **6 Claims**



1. A grinding apparatus for in-place machining of the interior surface of a hollow cylinder, comprising:

two diametrically adjustable spider ring assemblies concentrically attachable to the inner surface of the cylinder in a spaced relationship;

a longitudinal annulate rail assembly having opposite ends, each end rotatably mounted in a respective spider so that the rail assembly can be coaxially positioned in the cylinder and rotated;

drive means mounted on at least one spider for rotating the rail assembly;

a cage assembly mounted on the rail assembly for slidable movement therealong;

means for incrementally sliding the cage assembly along the rail assembly;

a grinding assembly mounted on the cage assembly;

the spider assembly including:

a circumferentially adjustable attachment ring;

an annular bearing ring assembly; and

a plurality of spreaders connecting the attachment ring and the bearing ring, each spreader being adjustable in length; and

the rail assembly including:

a pair of flanged, annular ring hubs for slidably engaging the bearing rings of the spiders; and

a plurality of rails attached to and extending between the hubs.

4,383,396

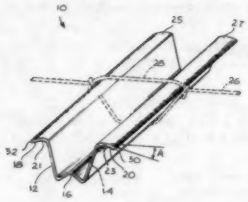
GRAPE STAKE

Charles J. Waugh, 15114 Oak Ranch Dr., Visalia, Calif. 93291

Filed Sep. 2, 1981, Ser. No. 298,876

Int. Cl.³ E04C *3/30*

U.S. Cl. 52—40 **10 Claims**



1. A stake having a pair of oppositely sloped leg portions joined at one end of each thereof to a common trough portion, the opposite end of each of said leg portions terminating in a respective connecting portion, each such connecting portion having a cross section which is a sector of a circle and having a crown;

a flange section connected to each of said connecting portions and forming, with a plane tangential to each of said crowns, a depression angle in the range of 10° to 15°; and,

each of said flange sections having an edge.

4,383,397

FURNITURE OR THE LIKE

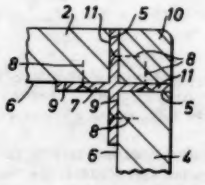
Donald L. Ward, Leigh-on-Sea, England, assignor to White Seal Design (Finance) Limited, St. Helier, Channel Islands

Filed Jun. 3, 1980, Ser. No. 156,093

Claims priority, application United Kingdom, Jun. 4, 1979, 7919428

Int. Cl.³ E04B *1/00*

U.S. Cl. 52—254 **3 Claims**



1. A structure having a plurality of structural components connected together, comprising:

first and second planar panels each having opposite inner and outer parallel major faces and an edge face extending

perpendicular to said major faces from one of said major faces to the other;

a unitary cruciform-shaped connecting member having throughout its length a uniform cross-section, said connection member having a longitudinal axis and four longitudinally extending webs extending radially from said longitudinal axis at intervals of 90° around said axis, said webs terminating in free longitudinally extending edges, each of said panels being positioned within a respective diagonally opposite angle of said cruciform-shaped connecting member with an inner major face secured to one of said webs and an edge secured to another of said webs, said first and second panels being mutually perpendicular to one another; and

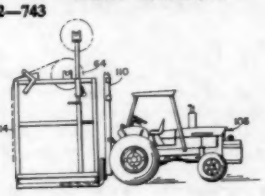
a filling member positioned within the angle of said cruciform-shaped connecting member which is between the angles receiving said first and second panels, the outer major face of each of said panels being exposed up to the edge of the web to which its edge face is secured.

4,383,398

INSULATION DISPENSING CAGE

James A. Tipton, 1243 Browns Ferry Rd., Chattanooga, Tenn. 37419

Filed Aug. 1, 1980, Ser. No. 174,545
Int. Cl.³ E04G 21/00
U.S. Cl. 52—743 **3 Claims**



1. The method of installing insulation wound in a roll onto a vertical wall of a building, said method comprising providing a frame having a substantially horizontally disposed mandrel and a canopy having a top surface disposed below said mandrel and inclined relatively thereto, the inclination being such that the top surface slopes downwardly away from said mandrel, said canopy further having a downwardly disposed surface extending from the lowermost portion of said top surface for forming a substantially horizontally disposed guide member at the intersection of said top surface and said downwardly disposed surface, supporting said frame on an elevatable gate of a forklift, mounting said roll on said mandrel, feeding said insulation over said top surface, over said guide member and vertically downwardly over said downwardly disposed surface, securing the free end of the insulation to the building, actuating said elevatable gate of the forklift vertically upwardly while paying out insulation from said roll, and securing the insulation to the building at the elevated position.

4,383,399

PRESSURIZATION METHOD FOR AEROSOL DISPENSER

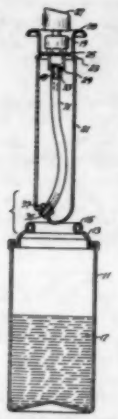
William R. Stoody, 8659 Summerdale Rd., San Diego, Calif. 92126

Continuation-in-part of Ser. No. 41,867, May 23, 1979, Pat. No. 4,265,373. This application Apr. 16, 1981, Ser. No. 254,927
Int. Cl.³ B65B 31/00
U.S. Cl. 53—470 **4 Claims**

1. The method of filling and pressurizing an aerosol dispenser having a container for product fluid containment, and having for pressurizing fluid containment, an expansible sac having an open end and an associated communicating means depending from a valve mechanism for isolated passage of product fluid, which comprises;

placing product fluid within said container through a top fill-opening of said container;

positioning said sac thereinto, and engaging the open end of said sac upon said fill-opening;



thereafter, passing pressurizing fluid into said sac through the engaged open end of said sac;

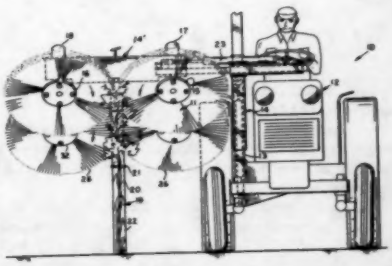
and successively projecting and securing said valve mechanism into the engaged open end of said sac, effecting sealing closure of said container and said sac.

4,383,400

METHOD AND APPAPATUS FOR POSITIONING GRAPEVINE SHOOTS

Lewis S. Mead, 1896 King Rd., and James K. Merritt, Rte. 39, both of Forestville, N.Y. 14062

Filed Dec. 19, 1980, Ser. No. 218,197
Int. Cl.³ A01D 55/18
U.S. Cl. 56—233 **13 Claims**



1. A brushing machine for grapevines 10 supported on a trellis comprising a brushing arrangement 11 adapted to be mounted on a general purpose farm tractor 12 adapted to move along one side of said grape trellis,

a vertical column adapted to be supported on said tractor,

said brushing arrangement comprising a mounting frame supported on said vertical column 13 and means to adjust said mounting frame up and down on said mounting frame,

a brush carrier frame 14 laterally slidable on said mounting frame at a side of said tractor above the level of said grape trellis for adjusting the position of brushes on said frame relative to said tractor,

brush support means **24** hinged to said brush carrier frame **14** by hinges to swing about a laterally extending axis **38**,

a first circular brush **15** rotatable about a first axis supported on a first side of said brush carrier frame and a second circular brush **16** rotatable about a second axis and supported on a second side of said brush carrier frame, whereby said brushes are disposed at opposite sides of said grape trellis and said circular brushes **15** and **16** are supported on said frames in horizontal spaced relation to each other with a space between said circular brushes adapted to receive said grape trellis **19** for simultaneously brushing both sides of said trellis,

said brushes having radially extending straws terminating in tips, and

means to swing said brush support means on said hinges about said laterally extending axis,

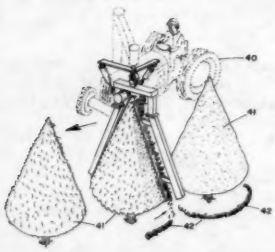
motors **17**, **18** connected to each said brush rotating said brushes in a manner to result in a resultant movement of the brush tips relative to the plants in a generally vertical plane as said tractor moves along said trellis.

4,383,401

TWIN MOUNTED DOUBLE SIDED RECIPROCATING SHAPING MECHANISM

Kenneth R. Lessard, Albany, and John M. McElrath, Jr., Macon, both of Ga., assignors to Christmas Trees, Ltd., Macon, Ga.

Filed Oct. 30, 1981, Ser. No. 316,745
Int. Cl.³ A01D *55/02*
U.S. Cl. 56—236 **13 Claims**



1. A twin mounted double sided reciprocating cutting and shaping mechanism comprising:

support frame means suspended vertically from a power driven rotating shaft and including universal joint means mounted and having reciprocating cylinders mounted to the frame means,

a bracket attached to a top yoke of the universal joint,

a twin pair of longitudinally formed double sided reciprocating cutting blade assemblies consisting of rows of double edged blades reciprocating between stationary formed fingers,

a twin pair of fluid drive motors, each for power driving one cutting blade assembly by rotating an eccentric hub,

an arm connected to said eccentric hub and cutting blade assembly for transforming rotary motion into reciprocating motion, and

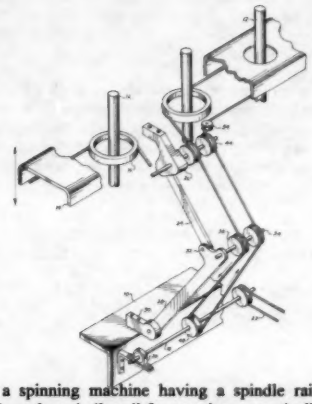
longitudinal frame means attached to a bottom of the support frame, suspended downwardly parallel to the double sided reciprocating cutting blade assemblies and attached to the outside of said blade assemblies wherein the material cut off by said cutting assemblies falls on the ground on the outside base of the tree or shrub and is deposited in a circle around said base.

4,383,402

TANGENTIALLY DRIVEN RING

Manuel Costales, and Moustafa I. Hakki, both of P.O. Box 884, Belmont, N.C. 28012

Filed May 30, 1979, Ser. No. 43,738
Int. Cl.³ D01H *7/58*
U.S. Cl. 57—105 **3 Claims**



3. In a spinning machine having a spindle rail, bobbins mounted on the spindle rail for rotation, a vertically reciprocating ring rail including spinning rings supported thereon for receiving the bobbins therethrough and mounted to move longitudinally of the bobbins, a traveller on each of said spinning rings for feeding yarn to the bobbin received through the ring, a spinning ring holder supporting each of said spinning rings for rotation in the ring rail, each of said spinning ring holders including a tubular drive sleeve extending through the said ring rail, the combination therewith of improved drive means for rotating and spinning ring holders and including a drive shaft with a drive pulley thereon, an endless drive belt in driven engagement with said drive pulley, a scissor-type linkage system interconnecting said spindle rail and said ring rail, said linkage system including an upper arm pivotally connected at one end to said ring rail, a lower arm pivotally connected at one end to said spindle rail, the other ends of said upper and lower arms being pivotally connected together, first idler pulley means rotatably supported at the pivotal interconnection of said other ends of said upper and lower arms, second idler pulley means rotatably supported on the pivotal interconnection of said one end of said upper arm and said ring rail, said first and second idler pulley means directing said endless drive belt along said linkage system and in driving engagement with at least one of said tubular drive sleeves to impart rotation to the corresponding spinning ring holder and spinning ring.

4,383,403

MULTICOLORED YARN AND METHOD

Takashi Nakayama, Ohtsu; Kohji Kajita, Ohmihachiman, and Seiichi Yamagata, Ohtsu, all of Japan, assignors to Toray Industries, Inc., Japan

Continuation of Ser. No. 56,391, Jul. 10, 1979, abandoned. This application Feb. 26, 1981, Ser. No. 238,566
Claims priority, application Japan, Jul. 10, 1978, 53-82972
Int. Cl.³ D02G *3/00;* **D01H** *13/00*
U.S. Cl. 57—207 **6 Claims**

1. A multicolored spun yarn comprising a substantially untwisted bundle of core staple fibers and several staple fibers wrapped substantially helically around said bundle of core staple fibers, the said bundle of core staple fibers comprising a plurality of staple fibers which are different from each other in

color tone or in dyeability, said yarn having, at random intervals portions wherein staple fibers of one kind cover up staple

fibers of another kind, and said yarn having other portions wherein at least two kinds of fibers lie adjacent to each other.

4,383,404

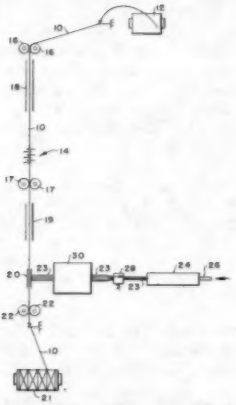
METHOD AND APPARATUS TO PRODUCE POST HEATED TEXTURED YARN

William M. Pascoe, Sr., Spartanburg, S.C., assignor to Milliken Research Corporation, Spartanburg, S.C.

Filed Aug. 26, 1981, Ser. No. 296,106

Int. Cl.³ D02G *3/34*; D01H *13/28*

U.S. Cl. 57—284 **7 Claims**



1. The method of producing a novel false twist textured yarn comprising the steps of: false twisting a synthetic, continuous filament yarn, supplying the false twisted yarn to a heating zone, intermittently blowing a plurality of streams of high temperature hot gaseous fluid against the false twisted yarn in the heating zone to detexture portions of the yarn and taking up the partially detextured, false twisted yarn.

4,383,405

YARN FALSE TWISTING APPARATUS AND METHOD

Karl Bauer; Peter Dammann, both of Remscheid; Hermann Kubler, Remscheid-Lüttringhausen, and Hellmut Lorenz, Remscheid, all of Fed. Rep. of Germany, assignors to Barmag Barmer Maschinenfabrik AG, Remscheid, Fed. Rep. of Germany

Filed Jun. 12, 1981, Ser. No. 273,081

Claims priority, application Fed. Rep. of Germany, Sep. 8, 1980, 3033756

Int. Cl.³ D02G *1/08*

U.S. Cl. 57—340 **17 Claims**

1. In a yarn false twisting apparatus comprising

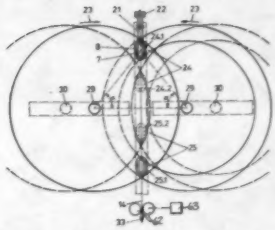
a frame,

a pair of twist imparting circular discs, with each disc including a yarn engaging friction surface, and with at least one of said discs being relatively thin and flexible,

a pressure applying member,

means mounting said discs and said pressure applying member to said frame, with said discs being rotatable about parallel spaced apart axes and such that portions of the receptive yarn engaging friction surfaces are disposed in opposing, face to face relationship and define a twisting zone therebetween, and with said pressure applying member being positioned to locally bias said one flexible disc toward the other disc only at said twisting zone, and including means permitting selective relative movement between said discs and said pressure applying member and such that the ratio of twist to yarn speed may be selectively varied,

drive means for rotating each of said discs about their respective axes, whereby a yarn may be continuously moved through said twisting zone while having twist imparted thereto by frictional contact between the yarn and the respective opposed friction surfaces resulting from the force exerted by said pressure applying member, said drive means including means for adjusting the rotational speed of said discs, and such that the ratio of disc speed (D) to yarn speed (Y) in the pressure zone of the pressure applying member may be adjusted to equal



$$(1/\text{Cosine alpha}) \times (1 \pm 20\%)$$

with alpha being the desired angle of twist in the twisted yarn.

4,383,406

APPARATUS FOR SEALING A ROTOR HOUSING OF AN OPEN-END SPINNING MACHINE

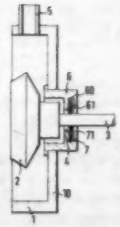
Rudolf Oexler, and Eberhard Grimm, both of Ingolstadt, Fed. Rep. of Germany, assignors to Schubert & Salzer Maschinenfabrik Aktiengesellschaft, Ingolstadt, Fed. Rep. of Germany

Filed May 22, 1981, Ser. No. 266,760

Claims priority, application Fed. Rep. of Germany, May 31, 1980, 3020725

Int. Cl.³ D01H *7/882*

U.S. Cl. 57—406 **8 Claims**



1. Apparatus for sealing a bore of a rotor housing of an open-end spinning machine which housing is under reduced pressure and through which a rotor shaft extends and is mounted with a sealing washer which has a passage opening

for the rotor shaft, said rotor shaft is smaller in diameter than the diameter of the bore, said apparatus comprising:

mounting means carried by said housing for floatingly mounting said sealing washer relative to said bore; and

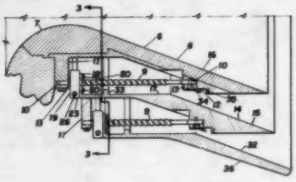
a counter-surface carried adjacent said reduced-pressure side of said housing abutted by said sealing washer which is maintained thereagainst by said reduced pressure in said housing.

4,383,407

EXTENDIBLE THRUST NOZZLE FOR ROCKETS

Frank S. Inman, Brigham City, Utah, assignor to Thiokol Corporation, Newtown, Pa.

Filed Feb. 2, 1981, Ser. No. 230,939
Int. Cl.³ F02K 1/09
U.S. Cl. 60—271 **19 Claims**



1. A nested extendible thrust nozzle for a rocket motor comprising;

a plurality of nested nozzle segments, the inner one of said segments being attachable to a rocket motor case, and at least one outer segment being movable from a nested position relative to the inner segment to an extended, fully deployed position, said segments each having a divergent conic interior surface, which surfaces collectively form a single, substantially conic surface when said outer segment is in its fully deployed position;

a set of elongated, stationary guide members fixed at each end to the exterior of said interior segment, each guide member of said set having an elongated positive traction surface that is disposed substantially parallel to the axis of the nozzle; and

rotational traction means attached to said outer segment and engaging the traction surface of each of said guide members for moving said outer segment to its deployed position.

4,383,408

EXHAUST GAS PURIFYING METHOD OF AN INTERNAL COMBUSTION ENGINE

Michiaki Ujihashi, and Kichiro Kato, both of Susono, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi, Japan

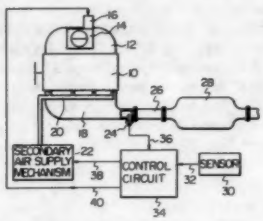
Filed Aug. 13, 1980, Ser. No. 177,607
Claims priority, application Japan, Aug. 17, 1979, 54-104015
Int. Cl.³ F01N 3/18
U.S. Cl. 60—274 **2 Claims**

1. Method of purifying exhaust gas of an internal combustion engine having: an exhaust passage; combustion chambers; an air-fuel ratio sensor installed in the exhaust passage for detecting the concentration of a predetermined component contained in the exhaust gas and for deriving a first electrical signal; a catalytic converter installed in the exhaust passage for reducing noxious components contained in the exhaust gas; a first feedback control means for controlling an air-fuel ratio of the air-fuel mixture supplied into the combustion chambers, in accordance with said first electrical signal; and a second feedback control means for controlling the amount of secondary air supplied into the exhaust passage at a position located upstream of said air-fuel ratio sensor and said catalytic converter, in accordance with said first electrical signal, said method comprising the steps of:

detecting the rotational speed of the engine to generate a second electrical signal which indicates the detected rotational speed;

detecting the intake manifold pressure to generate a third electrical signal which indicates the detected pressure;

energizing said first feedback control means and deenergizing said second feedback control means so as to execute the feedback control with respect to the air-fuel ratio only by the first feedback control means when said second and



third electrical signals indicate the engine is under a first operating condition where at least one of the rotational speed and the intake manifold pressure is higher than a predetermined value; and

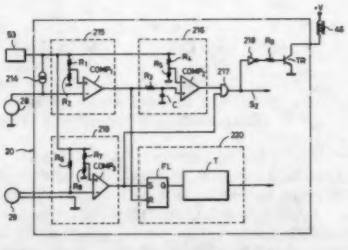
energizing said second feedback control means and deenergizing said first feedback control means so as to execute the feedback control with respect to the air-fuel ratio only by the second feedback control means when said second and third electrical signals indicate the engine is under a second operating condition where both the rotational speed and the intake manifold pressure are lower than a predetermined value.

4,383,409

AIR/FUEL RATIO CONTROL SYSTEM FOR INTERNAL COMBUSTION ENGINES, HAVING FUNCTION OF DETECTING AIR/FUEL RATIO CONTROL INITIATING TIMING

Kazuo Otsuka, Higashikurume; Shin Narasaka, Yono, and Shumpei Hasegawa, Niiza, all of Japan, assignors to Honda Motor Co., Ltd., Tokyo, Japan

Filed Jul. 17, 1981, Ser. No. 284,225
Claims priority, application Japan, Jul. 23, 1980, 55-100808
Int. Cl.³ F02B 75/10; F02M 7/00
U.S. Cl. 60—276 **3 Claims**



1. In an air/fuel ratio control system for performing feedback control of the air/fuel ratio of an air/fuel mixture being supplied to an internal combustion engine having an exhaust system, the control system including a three-way catalyst provided in said exhaust system of said engine, an O_2 sensor arranged between said engine and said three-way catalyst for

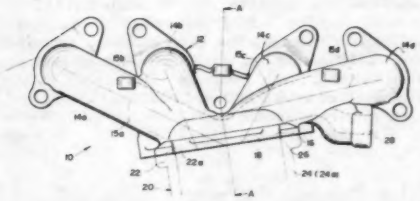
detecting the concentration of oxygen present in exhaust gases emitted from said engine, fuel quantity adjusting means for producing said mixture being supplied to said engine, and electrical circuit means operatively connecting said O_2 sensor with said fuel quantity adjusting means in a manner effecting feedback control operation in response to an output voltage produced by said O_2 sensor to control the air/fuel ratio of said mixture to a preset value, the combination comprising: means for supplying electric current to said O_2 sensor; means for determining the internal resistance of said O_2 sensor, said internal resistance determining means being operable to compare an output voltage produced by said O_2 sensor with a predetermined reference voltage to produce an output when said output voltage of said O_2 sensor decreases below said predetermined reference voltage; a timer circuit connected to said internal resistance determining means for producing an output after a lapse of a predetermined period of time from the occurrence of said output of said internal resistance determining means; means for detecting the temperature of said engine; an engine temperature determining circuit connected to said engine temperature detecting means for producing an output when the engine temperature detected by said latter means increases above a predetermined value; and signal generating means connected to said timer circuit and said engine temperature determining means for producing a signal for initiating said feedback control operation when supplied with both of said outputs from said latter two means.

4,383,410

EXHAUST SYSTEM OF A MULTI-CYLINDER INTERNAL COMBUSTION ENGINE

Susumu Kimura, Tokyo, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Feb. 23, 1981, Ser. No. 237,483
Claims priority, application Japan, Mar. 3, 1980, 55-26149[U]
Int. Cl.³ F02M *25/06*; F01N *3/28*
U.S. Cl. 60—278 **10 Claims**



1. An exhaust system for a multi-cylinder internal combustion engine, comprising:

a catalytic converter having a monolithic catalyst having an inlet end surface against which exhaust gas from the engine strikes;

an exhaust manifold having a plurality of branch runners and a gathering section to which said branch runners are gathered to connect with each other, said exhaust manifold directly connecting at its gathering section with said catalytic converter so that the inlet end surface of said catalyst locates in close proximity to said gathering section, the extensions of the axes of the branch runners meeting a plane containing said inlet end surface of said catalyst at separate and different points, respectively; and

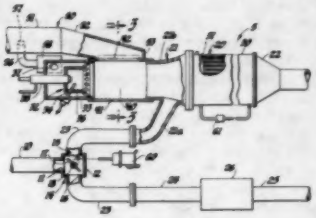
means for causing the extension of the axis of each branch runner to meet at an acute angle said plane containing the catalyst inlet end surface.

4,383,411

DIESEL EXHAUST CLEANER WITH BURNER VORTEX CHAMBER

John W. Riddel, Fenton, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 10, 1981, Ser. No. 291,310
Int. Cl.³ F01N *3/02*
U.S. Cl. 60—303 **3 Claims**



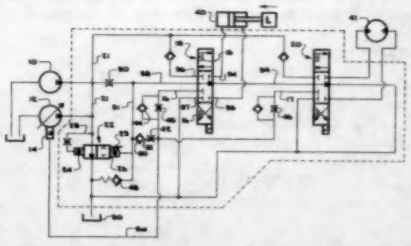
1. A diesel engine exhaust cleaner and burner system including at least one exhaust cleaner member means with a filter therein positioned between axial spaced apart inlet and outlet ends thereof; an inlet manifold means connected at one end to said inlet end of said cleaner member and at its other end having an inlet substantially co-axial with said inlet end and having a radial exhaust inlet; a valve controlled exhaust passage means operatively connected at one end to said exhaust inlet and at its other end being operatively connectable to the engine to receive exhaust discharged therefrom; a fuel burner means; a cyclone duct defining a vortex chamber operatively positioned between said fuel burner means and said inlet and co-axial therewith, said cyclone duct having a longitudinal air entrance slot extending through the outer peripheral portion thereof with the longitudinal extending sides of said air entrance slot defining a convolute shaped passage arranged so as to direct fluid flow in a direction substantially tangential to the inner peripheral wall surface of said cylcone duct; and, an air duct connectable at one end to a source of pressurized air, said air duct terminating at its opposite end in a duct portion having a longitudinal extending discharge slot therethrough that is operatively connected in flow communication with said air entrance slot for the introduction of air into said vortex chamber.

4,383,412

MULTIPLE PUMP LOAD SENSING SYSTEM

Glen T. Presley, Angola, Ind., assignor to Cross Manufacturing, Inc., Lewis, Kans.

Filed Oct. 17, 1979, Ser. No. 85,884
Int. Cl.³ F15B *13/09*
U.S. Cl. 60—430 **7 Claims**



1. An open-center load sensing system supplied by multiple pumps for driving at least one motor (40) which in turn drives a load comprising:

a fixed displacement pump (**10**);

a variable displacement flow compensated pump (**12**) connected in parallel with the fixed displacement pump including a flow responsive compensator means (**14**) with a predetermined $\Delta\rho$ for controlling the displacement of the pump;

a load responsive control valve means (**18**) including a control valve spool positioned between said pumps and said motor which senses the load on said motor in its operative positions, the control valve means includes an unloading spool means (**22**) which is flow responsive in the operative positions of the valve and maintains a constant $\Delta\rho$ across said control valve spool by dumping pump flow to reservoir (**50**); said control valve $\Delta\rho$ being greater than the $\Delta\rho$ of said pump compensator means (**14**); the unloading spool means (**22**) is capable of dumping to reservoir a portion of or the entire flow from said pumps;

a first sensing passage (**16**, **32** and **31**) connecting the load caused pressure on said motor downstream of said control valve means to the unloading spool; and

a second sensing passage (**16***a*) connecting the pump compensator means with said load.

4,383,413

WAVE ENERGY APPARATUS

Alan A. Wells, Grove House, 15 Bridge Rd., Mepal, Cambridgeshire, England (CB6 ZAR)

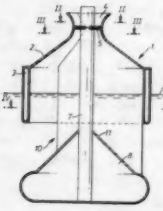
PCT No. PCT/GB80/00168, § 371 Date Jun. 15, 1981, § 102(e) Date Jun. 15, 1981, PCT Pub. No. WO81/01174, PCT Pub. Date Apr. 30, 1981

PCT Filed Oct. 16, 1980, Ser. No. 276,340

Claims priority, application United Kingdom, Oct. 17, 1979, 7936005

Int. Cl.³ F03B *13/12*

U.S. Cl. 60—497 **13 Claims**



1. Wave energy apparatus comprising a body adapted to float in water, said body being provided with a turbine such that a flow of working fluid through the turbine in either axial direction causes the rotor to rotate always in the same direction, and a plurality of conduits for directing working fluid to respective regions of said turbine for axial flow therethrough, each of said conduits being connected to a source of driving liquid at different respective locations in said body, the arrangement being such that the driving liquid urges working fluid along the conduits in response to both vertical and rocking movements of the body.

4,383,414

PELTIER REFRIGERATION CONSTRUCTION

Shlomo Beitner, Tel-Aviv, Israel, assignor to Bipol Ltd., Tel-Aviv, Israel

Filed Oct. 30, 1981, Ser. No. 316,882

Int. Cl.³ F25B *21/02*

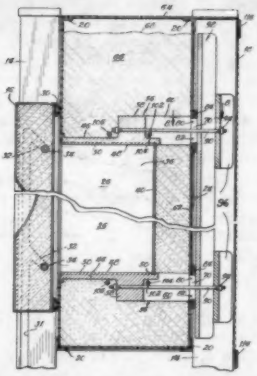
U.S. Cl. 62—3 **34 Claims**

27. A process for making a refrigeration unit powered by a thermoelectric element of the Peltier type which comprises:

assembling a box-shaped compartment having an open front, side walls formed of heat-conducting material, and end walls formed of massive end plates of heat-conducting material; said massive plates comprising integral protuberances which terminate in flat faces normal to the end walls of said compartment;

applying to said walls insulation material including a surface layer of denser insulation material;

forming a depression in said insulation material which exposes the said flat face;



placing a thermoelectric element in said depression with the cold face thereof in flat surface-to-surface contact with said flat face;

placing an external thermal sink in heat-exchange with the hot face of said thermoelectric element; and,

drawing said protuberance and said thermal sink together to place said thermoelectric element in compression therebetween to insure effective heat exchange.

4,383,415

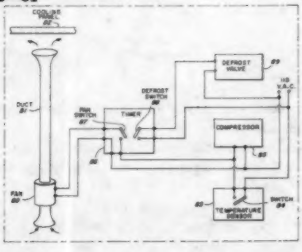
REFRIGERATION AND WATER CONDENSATE REMOVAL APPARATUS

Carlyle W. Jacob, 118 Presidents La., Quincy, Mass. 02169

Continuation-in-part of Ser. No. 100,266, Dec. 4, 1979, abandoned, which is a continuation-in-part of Ser. No. 920,242, Jun. 29, 1978, abandoned, which is a continuation-in-part of Ser. No. 811,765, Jun. 20, 1977, abandoned, which is a continuation-in-part of Ser. No. 611,864, Sep. 10, 1975, abandoned. This application Aug. 12, 1981, Ser. No. 292,341

Int. Cl.³ F25B *25/00*

U.S. Cl. 62—81 **46 Claims**



44. A freezer having a compartment for containing products and for maintaining temperatures in the compartment below the freezing point of water over long time periods, including

(1) a cooling panel in the compartment, the panel being of the type having a porous surface exposed to the air to be cooled and having a network of thin drainage channels

behind the exposed porous surface for the removal of moisture entering the channels through the pores of the porous surface,

(2) means for intermittently cooling the cooling panel to maintain the cooling panel below freezing temperatures,

(3) one or more outlets communicating with the thin drainage channels to permit water condensate drawn through the porous surface into the thin drainage channels from the outside exposed face of the porous sheet on which moisture from the cooled air has condensed to be drained away, the outlets for draining away the water being separate from the means for cooling the cooling panel, and

(4) means for defrosting the cooling panel after a long freezing period by applying heat for a short period of time to melt the frost accumulated on the porous surface over the long freezing period,

the improvement residing in

(5) an air circulating fan,

(6) a programmed sequencer for controlling the operation of the fan and the defrosting means, said sequencer being programmed to defrost the compartment after long intervals by causing the fan to circulate air relatively rapidly for a prolonged period in which the cooling panel is substantially colder than the non-cooling surfaces in the compartment and causing said prolonged period of air flow by the fan to end relatively shortly before heat is applied to the cooling panel to melt the frost, said sequencer causing said relatively rapid circulation of the air for a prolonged period to occur only after many intermittent coolings of the cooling means to maintain the temperature in the compartment below freezing had occurred, and

(7) air flow directing means for causing the fan to blow a substantial quantity of the air within the compartment adjacent to the cooling panel whereby at least a sizeable portion of the frost on the non-cooling surfaces in the compartment is transferred onto the cooling panel.

4,383,416

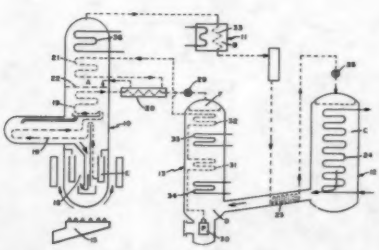
ABSORPTION HEATING SYSTEM WITH IMPROVED LIQUID FLOW CONTROL

Benjamin A. Phillips, Benton Harbor, Mich., assignor to Allied Corporation, Morris Township, Morris County, N.J.

Filed Dec. 29, 1980, Ser. No. 221,137

Int. Cl.³ F25B *15/00*

U.S. Cl. 62—101 **6 Claims**



4. In a method of absorption heating wherein heat is rejected from a condensing refrigerant at a high pressure, the condensed refrigerant is expanded to a low pressure, heat is absorbed into an evaporating refrigerant at the low pressure, the evaporated refrigerant is absorbed into an absorbent solution at the low pressure, the solution formed by absorbing the refrigerant into the absorbent is pumped to a high pressure, the refrigerant is distilled from the solution at the high pressure and returned to the condensing step, and the absorbent remaining after distillation is returned to the low pressure to absorb additional evaporated refrigerant;

the improvement wherein the absorbent solution flow to the lower pressure is controlled through a variably sized flow restriction, and the method further comprises:

increasing the size of the restriction to increase the flow of absorbent in response to decreases in the low pressure, and

decreasing the size of the restriction to decrease the flow of absorbent in response to increases in the low pressure.

4,383,417

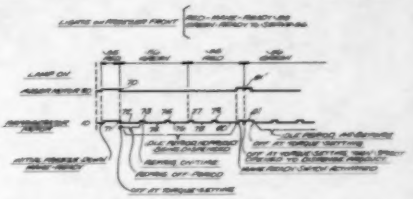
SOFT-SERVE FREEZER CONTROL

Tom N. Martineau, Kiel, Wis., assignor to Stoelting, Inc., Kiel, Wis.

Filed Sep. 2, 1981, Ser. No. 298,677

Int. Cl.³ A23G *9/00*; F25C *1/00*

U.S. Cl. 62—127 **10 Claims**



1. In a soft-serve freezer including a freezing chamber with a spigot, a mixing element, a first motor for said mixing element and a refrigeration system including a second motor for a compressor in said refrigerator system, the improvement comprising control circuit means for said first and second motors, said control circuit means including electric power sensing means associated with said first motor, said control circuit means providing an operational sequence with first and second modes in which said mixing element and said refrigeration system are operating concurrently in a first mode until said power sensing means senses a predetermined power input to said first motor corresponding to a pre-selected consistency, whereupon said circuit is switched to said second mode wherein said second motor is switched on and off at a selected frequency and said circuit including manually operable mode changing means to change to said first mode with said first motor driving said mixing element in contemplation of the dispensing of product from said spigot and said circuit remaining in said second mode until said manually operable means are actuated.

4,383,418

CIRCULATOR PUMP FOR CONVEYING A LIQUID AND/OR GASEOUS MEDIUM

Walter Holzer, Drosteweg 19, 7758 Meersburg, Fed. Rep. of Germany

PCT No. PCT/EP80/00036, § 371 Date Dec. 9, 1980, § 102(e) Date Dec. 9, 1980, PCT Pub. No. WO80/02869, PCT Pub. Date Dec. 24, 1980

PCT Filed Jun. 10, 1980, Ser. No. 224,507

Claims priority, application Fed. Rep. of Germany, Jun. 11, 1979, 2923621

Int. Cl.³ F04B *17/00*; F24J *3/02*

U.S. Cl. 62—235.1 **14 Claims**

1. A circulator pump for a plant for the utilization of solar heat comprising:

a first heat exchanger for collecting heat at a high level disposed within a solar collector;

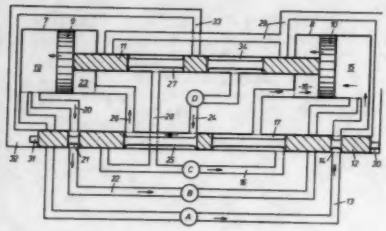
a medium for receiving heat collected in said first heat exchanger;

a second heat exchanger for collecting heat at a lower level with respect to said first heat exchanger;

a circulator pump for circulating said medium through said first and second heat exchangers;

said circulator pump being a prime mover driven by a pres-

sure difference between said first and second heat exchangers and being a charger pump, said prime mover and charger pump operating in a push-pull manner as differential piston pumps having a common piston rod operatively disposed within a chamber including control ducts, which load an auxiliary control slider member;



said auxiliary control slider member being reciprocated within a chamber and upon reaching end portions of said differential piston switch the chambers of the two differential piston pumps to effect oppositely directed movement.

4,383,419

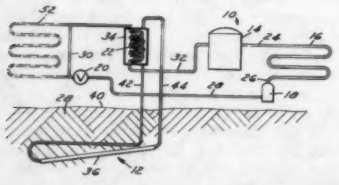
HEATING SYSTEM AND METHOD

Edward W. Bottum, 9357 Spencer Rd., Brighton, Mich. 48116

Filed May 11, 1977, Ser. No. 795,812

Int. Cl.³ F25B *27/02*

U.S. Cl. 62—238.6 **6 Claims**



1. A heating system comprising a heat pump system and a heat collecting system, said heat pump system including a compressor, evaporator, and condenser, all connected together in operative relationship, said heat collecting system comprising a source of heat energy, a heat collector structure positioned to collect heat from said source, said heat collecting structure comprising a plurality of spaced apart tubular members, an inlet manifold connected to one end of said tubular members and an outlet manifold connected to the other end of said tubular members, said heat collecting structure being positioned with said inlet manifold below said outlet manifold, heat dissipating structure and means for circulating a refrigerant heat transfer medium in gaseous form from the heat collector structure to the heat dissipating structure and in liquid form from the heat dissipating structure to the heat collecting structure, all connected together in operative relationship, and a refrigerant heat transfer medium in said heat collecting system, said heat dissipating structure being located above said heat collecting structure, said liquid refrigerant flowing from said heat dissipating structure to the heat collecting structure by gravity and gaseous refrigerant flowing from the heat collecting structure to said heat dissipating structure as a consequence of its own vapor pressure, said evaporator of the heat pump system being in heat exchange relationship with said heat dissipating structure of the heat collecting system.

4,383,420

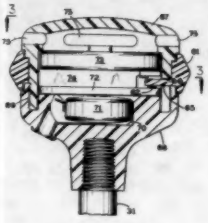
CONTROL APPARATUS FOR AUTOMOTIVE AIR CONDITIONER

Abe Seiderman, 7365 SW. 132nd St., Miami, Fla. 33156

Division of Ser. No. 169,994, Jul. 18, 1980. This application Sep. 16, 1981, Ser. No. 302,773

Int. Cl.³ F25B *27/00*

U.S. Cl. 62—323.4 **5 Claims**



1. On an automotive vehicle having an engine, a transmission, a gear shift lever for shifting said transmission, said gear shift lever having a handle on its outer end, and an air conditioner, the improvement which comprises:

an ultrasonic transmitter in said handle for broadcasting an ultrasonic signal;

a manual switch on said handle operable to turn on said transmitter;

a receiver having an electroacoustic transducer for receiving the signal broadcast by said transmitter;

and means operable by said receiver for turning off the air conditioner.

4,383,421

REFRIGERATION UNIT COMPRISING COMPARTMENTS AT DIFFERENT TEMPERATURES

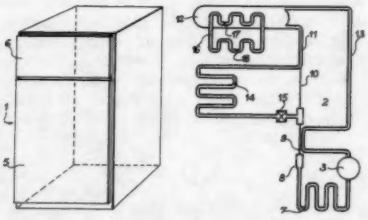
Jacques Quesnoit, Paris, France, assignor to Thomson-Brandt, Paris, France

Filed Jul. 9, 1981, Ser. No. 281,852

Claims priority, application France, Jul. 11, 1980, 80 15495

Int. Cl.³ F25D *17/00*

U.S. Cl. 62—333 **19 Claims**



1. A refrigeration unit comprising compartments at different temperatures, controlled by separate thermostatic devices, and cooled by a refrigerant circuit comprising a pressure-reducing capillary tube, and a single motor-compressor, characterized by the fact that it comprises a primary circuit of the type with expansion by capillary tube, with at least one evaporator functioning as an ordinary evaporator to cool at least one compartment at a higher temperature, known as the refrigerator compartment, and another evaporator forming part of a heat exchanger, to cool a compartment at a lower temperature, known as the freezer compartment, through a secondary circuit with a condenser and an evaporator, the condenser of which forms the heat exchanger with the second primary circuit evaporator, within which a refrigerant or cold-produc-

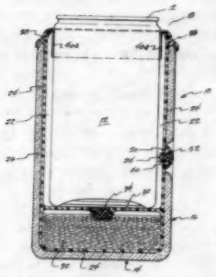
ing fluid circulates, and the evaporator of which is situated in the freezer compartment, in such a way as to produce a thermal valve effect, allowing heat to be transferred when the heat exchanger evaporator is at a lower temperature than the freezer compartment, and otherwise preventing any heat transfer, and comprises at least one device to block and release cold generation in the refrigerator compartment or compartments, the blocking state halting cooling of the refrigerator compartment or compartments, and thereby allowing cooling of the freezer compartment, while the releasing state allows cooling of the refrigerator compartment or compartments, halting cooling of the freezer compartment.

4,383,422

PORTABLE INSULATED HOLDER FOR BEVERAGE CONTAINERS

Jay E. Gordon, Rte. 5, Box 47A, and Peter M. Wells, 213 Cedarcrest Dr., both of Brevard, N.C. 28712

Filed Dec. 3, 1981, Ser. No. 326,855
Int. Cl.³ F25D *3/08*
U.S. Cl. 62—457 **13 Claims**



1. An insulated holder for beverage containers having walls defining a generally cup-shaped, open-topped compartment for receiving a beverage container therein, with the side walls of the compartment spaced from the side walls of the beverage container throughout the major portion of the height of the compartment, said holder walls comprising an air-impervious, generally shape-sustaining inner layer defining interior wall surfaces of the holder, and an outer insulating layer of generally soft flexible foam type material secured thereto, and air-impervious means extending inwardly from the upper portion of the side walls of the holder to engage side walls of a beverage container placed in the holder compartment and form a generally airtight, sealed space in the holder compartment between the side walls of the holder and the beverage container.

4,383,423

THERMAL SEPARATORS EMPLOYING A MOVABLE DISTRIBUTOR

Eric L. H. Lenglet, Marly-le-Roi, and Phillippe A. H. Marchal, Plaisir, both of France, assignors to Nouvelles Applications Technologiques, Rueil-Malmaison, France

Filed Mar. 26, 1981, Ser. No. 247,735
Claims priority, application France, Apr. 2, 1980, 80 07472
Int. Cl.³ F25B *23/00*
U.S. Cl. 62—467 R **7 Claims**

1. A thermal separator comprising:

an upstream-located continuous pressure gas supply,

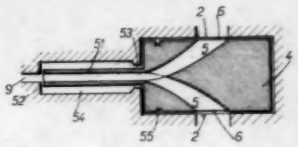
at least one downstream-located pulse tube designed to work under gaseous pulsatory running conditions when fed with gas from the upstream-located continuous pressure gas supply,

a mechanical distributor interposed between said upstream-located continuous pressure gas supply and said downstream-located pulse tube,

said mechanical distributor including movable material having means having

peripherally-located input means connected to said upstream-located continuous pressure gas supply,

centrally-located output means connected to said downstream-located pulse tube, and



intermediate duct means connecting said peripherally-located input means with said centrally located output means,

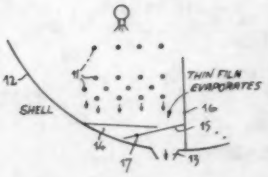
whereby the pressure gas progresses through said mechanical distributor in a direction from the outside towards the inside thereof in travelling from said peripherally-located input means through said intermediate duct means up to said centrally-located output means to issue therefrom into said downstream located pulse tube.

4,383,424

REDUCTION OF SUPERHEATING

Isaih Vardi, 20 Hess St., Rehovoth; Joseph Bourne, 24 Hagdud Haivri St., Raanana; Jonathan Ben-Dror, Hadar Am, and Yigal Kimchi, 7 Zvi St., Ramat Gan, all of Israel

Filed Mar. 23, 1981, Ser. No. 246,844
Int. Cl.³ F25B *15/00*
U.S. Cl. 62—476 **8 Claims**



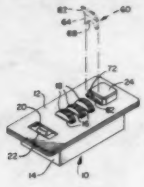
1. In an absorption refrigeration device of the type using a lithium halide/water cycle and having means defining a housing, a plurality of tubes disposed in said housing for superheating a lithium halide solution to evaporate water therefrom and form a superheated concentrated lithium halide solution, the housing having an exit port located in the lower portion of the housing for removing concentrated solution therefrom, the improvement comprising baffle means disposed between said tubes and the housing exit port for receiving the superheated concentrated lithium halide solution and flowing same over the baffle means in the form of a thin film of superheated concentrated lithium halide solution, said baffle means being comprised of a plurality of vertically stepped, horizontally extending overlapping baffles defining a tortuous pathway over which the thin film of superheated concentrated lithium halide solution flows so that further water is evaporated from the thin film as it flows over the plurality of vertically stepped, horizontally extending overlapping baffles to substantially reduce the degree of superheating of such concentrated solution and the solution flowing out of the exit port in the lower portion of the housing is of substantially reduced temperature and increased concentration.

4,383,425

SAFETY DEVICE FOR COMBINATION LOCKS

Joseph J. Orabona, Mahwah, N.J., assignor to Presto Lock, Inc., Garfield, N.J.

Filed Apr. 23, 1981, Ser. No. 256,943
Int. Cl.[3] E05B 17/00, 37/02
U.S. Cl. 70—312 11 Claims



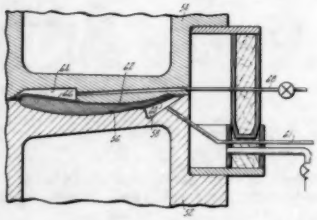
1. For use with a combination lock of the type having a faceplate, a plurality of combination dials extending through slots in the faceplate, and a manually engageable actuator disposed on the faceplate, the actuator being movable from a rest position to an open position to open the combination lock and being movable to a combination-changing position to enable the dials to be rotated to a new combination, a safety device for preventing the combination from being changed, comprising a removable element insertable into an opening in the faceplate adjacent to the actuator and being engageable with the actuator to block movement of the actuator to the combination-changing position.

4,383,426

DIE CONSTRUCTION FOR FAN BLADES

John R. Legge, Durham, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Mar. 16, 1981, Ser. No. 243,688
Int. Cl.[3] B21D 22/10
U.S. Cl. 72—63 10 Claims



1. In a die assembly for reforming an article having an irregular shape such as a fan blade,

a die having a shaped surface conforming to one surface of the article,

an opposed die having a cooperating shaped surface, said dies cooperating to form a cavity to receive the article,

a flexible metallic diaphragm overlying only a part of one of said surfaces of one of said dies and in a position to engage a portion only of said article, said diaphragm being welded along its edges to the associated die to form a fluid tight chamber between said one surface and said diaphragm, and

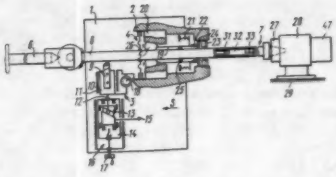
means for supplying a fluid under pressure to said chamber in back of said diaphragm to urge said diaphragm against the adjacent portion of the article.

4,383,427

APPARATUS FOR THE MACHINING OF CYLINDRICAL SURFACES

Gennady M. Azarevich, ulitsa akademika Yangelya, 14, korpus 2, kv. 257; Jury V. Maximov, ulitsa Lesteva, 18, kv. 36; Boris I. Akimov, Simonovsky val, 7, korpus 1, kv. 249, and Iosif A. Gusyatsky, ulitsa Malaya Bronnaya, 10, kv. 35, all of Moscow, U.S.S.R.

Filed Mar. 3, 1981, Ser. No. 239,991
Int. Cl.[3] B23B 23/00; B24B 39/04
U.S. Cl. 72—71 10 Claims



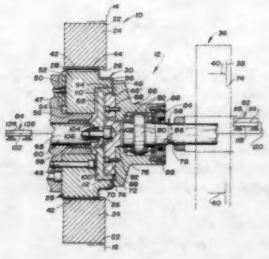
1. An apparatus for the machining of cylindrical surfaces on machine tools having a frame, a headstock with a main motion drive installed on said frame, a tailstock installed on said frame, a carriage installed on said frame and a means of displacing said carriage in the longitudinal direction, said apparatus comprising a housing installed on said carriage; a tool head fitted to said housing; at least one tool secured in said tool head; a head with deforming rollers spaced equidistantly apart in a circumferential direction, said head being fitted to said housing behind said tool head, as viewed in the direction of length feed; a headstock center fitting into said headstock; a tailstock center fitting into said tailstock; said headstock and tailstock centers supporting work placed therebetween; said tailstock center having a first portion thereof contiguous face to face with the work during machining and a second porton serving as a guide for said deforming rollers provided with a diameter virtually equal to the diameter at which said deforming rollers are set; an end of said first portion being adapted at the side contiguous with the work to accommodate the point of the tool in a position preparatory to machining.

4,383,428

LOADER FOR THIN-WALL SPLINE ROLLING MACHINE

Harald N. Jungesjo, Rochester, Mich., assignor to Anderson-Cook, Inc., Fraser, Mich.

Filed Feb. 23, 1981, Ser. No. 237,022
Int. Cl.[3] B21D 9/14, 17/00, 53/28
U.S. Cl. 72—88 8 Claims



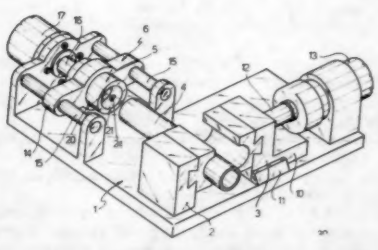
1. In apparatus for splining an annular thin-wall sleeve of a power transmission member having an end wall including an opening, said apparatus including a toothed mandrel for mounting a member to be splined about a rotational axis, said

mandrel having an opening through which the rotational axis extends, and a pair of toothed dies movable in opposite directions with respect to each other on opposite sides of the rotational axis such that the die and mandrel teeth mesh with the sleeve of a mounted power transmission member therebetween to form splines therein, a loader mounted adjacent the mandrel along the rotational axis thereof to provide loading of the power transmission member on the mandrel for splining and subsequent unloading of the splined member from the mandrel, said loader comprising: a loading member movable along the rotational axis toward and away from the mandrel and having a rotatable clamp including a locator that is received within the end wall opening of a power transmission member to be splined, said clamp also including a clamping surface extending about the locator for engaging the end wall of said power transmission member during the loading and unloading as well as clamping the end wall of the power transmission member against the mandrel as the splines are formed in the sleeve thereof, an unloading member that extends through the mandrel opening and is movable along the rotational axis toward and away from the mandrel in coordination with the loading member and including a depression that receives the locator of the loading member during the coordinated movement of the loading and unloading members, and said unloading member including a clamping surface extending about the depression thereof so as to engage the end wall of said power transmission member in an opposed clamping relationship with the clamping surface of the loading member clamp in order to load the power transmission member on the mandrel for splining and subsequently unload the splined member from the mandrel, whereby the unloading member can subsequently be moved away from the loading member and the splined member whose end wall opening receives the locator in preparation for loading another power transmission member to be splined.

4,383,429
APPARATUS FOR FORMING A POINT AT THE END OF A METAL TUBE BY MEANS OF A DRAWING OPERATION

Bruno Ceccacci, Florence, Italy, assignor to La Metalli Industriale S.p.A., Borgo Pinti, Italy

Filed Mar. 9, 1981, Ser. No. 241,581
Claims priority, application Italy, Apr. 16, 1980, 67594 A/80
Int. Cl.³ B21D *41/04*
U.S. Cl. 72—318 **17 Claims**



8. An apparatus for forming a tubular end portion on a tube of a given diameter wherein said end portion has a diameter less than said given diameter; said apparatus comprising a die, and means for axially driving said die and said tube relative to one another in order to engage said end of said tube with said die; said die comprising:

a substantially cylindrical bore, said bore having an internal diameter substantially equal to the diameter of said end portion;

a substantially conical bore adjacent to and coaxial with said cylindrical bore; and

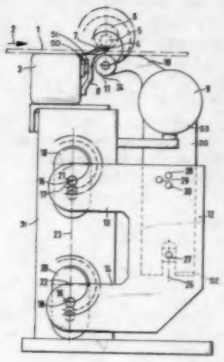
at least three revolving bodies on said conical bore projecting radially towards the axis of said die;

said internal diameter being sufficiently large to maintain an open cross-section in said tubular end portion when said die and said tube are driven relative to one another.

4,383,430
BENDING MACHINE

Siegfried Klaus, Ennepetal, Fed. Rep. of Germany, assignor to Rolf Peddinghaus, Ennepetal, Fed. Rep. of Germany

Filed Dec. 19, 1980, Ser. No. 218,407
Claims priority, application Fed. Rep. of Germany, Dec. 22, 1979, 2952026
Int. Cl.³ B21D *7/02*
U.S. Cl. 72—387 **8 Claims**



1. A bending machine for simultaneous bending of the wires of a wire mesh comprising a base, a rest supported on said base for supporting the wire mesh, bending mandrels supported on said base adjacent said rest and around which the wires of the wire mesh are bent, a bending rod for bending said wires about said mandrels supported with respect to said rest and mandrels so that the wire mesh passes between the bending rod and mandrels when supported on said rest, a bending beam, at least one support arm connecting said bending rod to said beam, at least one web member connected to said beam, two spaced bearing holes in said web member, rotational shaft bearings mounted in said holes, said bearings being positioned with respect to said mandrels so that a first line passing through the centers of rotation of said bearings is substantially parallel to a second line passing through the centers of said mandrels and bending rod, two crank members rotatably mounted on said base and having their axes of rotation lying on a third line extending parallel to said second line, a crank shaft mounted eccentrically in each crank member and engageable in one of said bearings in said web member, and said crank members being adapted to driven to operate said bending rod through an arcuate path about said mandrels through said web member, beam and support arm.

4,383,431
AUTO-ZERO SYSTEM FOR PRESSURE TRANSDUCERS

Barry Gelernt, Bridgeport, Conn., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.

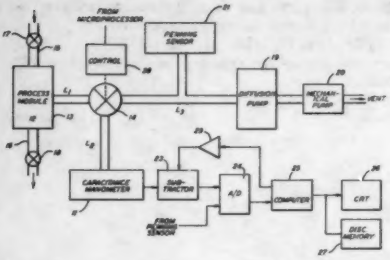
Filed Nov. 3, 1980, Ser. No. 203,735
Int. Cl.³ G01L *27/00*
U.S. Cl. 73—4 R **12 Claims**

1. An apparatus for correcting zero drift of a capacitance manometer, comprising in combination;

pump means,

first means connecting the capacitance manometer to said pump means when said pump means is at a pressure at least an order of magnitude less than the lowest readable pressure of the capacitance manometer,

second means connected to the capacitance manometer recording the reading of the capacitance manometer as a correction factor when it is connected to said pump means,



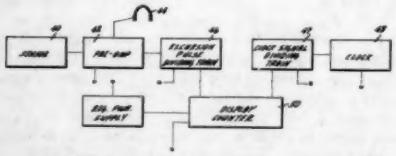
third means connected to the capacitance manometer and said second means for applying said correction factor to subsequent readings of the capacitance manometer.

4,383,432

CLOCK ESCAPEMENT MONITOR

Nein T. Hoxsie, 3949 - 5th Ave., San Diego, Calif. 92103, and Eric J. Whitesell, 11651 Papagallo Ct., San Diego, Calif. 92124

Filed May 11, 1981, Ser. No. 262,402
Int. Cl.³ G04B *17/00*
U.S. Cl. 73—6 **11 Claims**



1. A clock escapement monitoring device comprising:

a sensor means for detecting the mechanical vibrations occurring at each excursion of said clock escapement and producing an electrical signal corresponding to said vibration;

amplifier means for amplifying said electrical signal to a desired level;

a standard time signal;

circuit means utilizing said standard time signal for counting consecutive amplified electrical signals, said circuit means selectively capable of producing a visual display signal representing the time interval of one escapement excursion cycle, the average time of each excursion cycle during ten successive excursion cycles and the average time of each excursion cycle during one hundred successive excursion cycles;

a display means for visually displaying said visual display signal; and

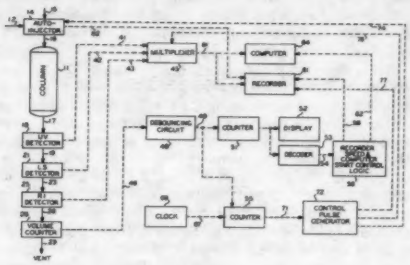
power supply means for supplying operating power to said clock escapement monitoring device.

4,383,433

CHROMATOGRAPHIC ANALYSIS USING A PLURALITY OF DETECTORS

Carl J. Stacy, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jul. 17, 1981, Ser. No. 284,046
Int. Cl.³ G01N *31/08*
U.S. Cl. 73—23.1 **10 Claims**



1. Apparatus comprising:

a chromatographic separation column means;

means for passing a stream of carrier fluid to said chromatographic separation column means;

means for injecting a sample of a material to be analyzed into the stream of said carrier fluid flowing to said chromatographic separation column means;

a first detector means capable of measuring a first property of a fluid which is characteristic of the fluid;

a second detector means capable of measuring a second property of a fluid which is characteristic of the fluid, wherein said first property is different from said second property and wherein said first detector is in series with said second detector;

means for passing the stream of said carrier fluid containing separated components of the sample of said material from said chromatographic separation column means through said first detector means and said second detector means, said first detector means providing a first signal representative of the response of said first detector means and said second detector means providing a second signal representative of the response of said second detector means;

volume counter means for determining the volume of fluid flowing through said first detector means and said second detector means per unit time and for establishing a volume output signal which pulses when a specified volume of fluid flows through said volume counter means;

multiplexer means;

data acquisition means;

means for providing said first and second signals as inputs to said multiplexer means;

means for providing the output of said multiplexer means to said data acquisition means; and

means for switching said multiplexer means between said first signal and said second signal in synchronization with said volume counter signal in such a manner that the multiplexing of said first and second signals is synchronized with the flow of fluid through said first detector means and said second detector means.

4,383,434

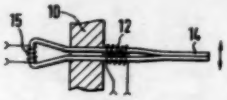
MAGNETOSTRICTIVE ENGINE-KNOCK SENSOR

Hans-Joachim Hamisch; Manfred Boruschewitz, and Theodor Gast, all of Berlin, Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Mar. 9, 1981, Ser. No. 241,513
Int. Cl.³ G01L *23/22*
U.S. Cl. 73—35 **10 Claims**

1. A sensor for detecting oscillations in an internal combus-

tion engine resulting from engine knocks comprising a flexure vibration member of resilient material clamped at one end in a mounting affixing said end of said member to a part of an internal combustion engine which transmits engine-knock noise, said flexure vibration member having its longest dimension oriented perpendicularly to the direction of oscillatory movement of said engine part during transmission of engine-knock noise and having the improvement which consists in that:



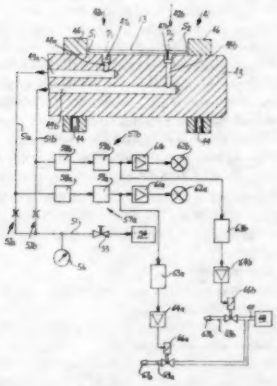
said flexure vibration member is a strip of magnetostrictive material of originally uniform magnetostrictive polarity folded over on itself so as to provide two longitudinal adjacent regions of opposite magnetostrictive polarity and at least one coil is wound around said element for connection in an electrical circuit for detecting flexure vibrations of said flexure vibration member.

4,383,435

METHOD AND APPARATUS FOR MONITORING THE LOCATIONS OF PERFORATIONS IN WEBS OF WRAPPING MATERIAL FOR FILTER CIGARETTES OR THE LIKE

Alfred Hinzmann, Weams, Va., assignor to Hauni-Werke Körber & Co. KG, Hamburg, Fed. Rep. of Germany

Filed May 8, 1981, Ser. No. 261,956
Int. Cl.³ G01B *13/04*
U.S. Cl. 73—37.7 **17 Claims**



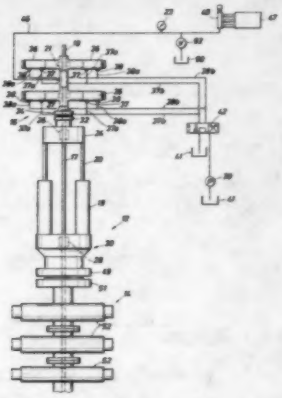
1. A method of processing a running web of wrapping material having at least one row of perforations which are normally disposed at a given distance from a marginal portion of the web, particularly of processing a running web of tipping paper in a filter tipping machine ahead of the station at which at least one selected portion of one side of the web is coated with adhesive, comprising the steps of transporting the marginal portion of the web lengthwise along a predetermined path so that those perforations which are located at said given distance from the marginal portion advance along a second path separated from said predetermined path by said given distance; monitoring the distance between the marginal portion and the row of perforations in the running web, including scanning said second path for the presence of perforations; and automatically generating a signal on detection of the absence of perforations in said second path.

4,383,436

PIPE TESTER

Charles D. Hailey, P.O. Box 95328, Oklahoma City, Okla. 73143

Filed Jan. 23, 1981, Ser. No. 227,915
Int. Cl.³ G01M *3/28*
U.S. Cl. 73—46 **14 Claims**



1. Apparatus capable of use for externally testing a pipe joint connecting two sections of pipe, comprising:

upper hydraulic ram means having a transverse opening for receiving a pipe and seal means arranged to close about the pipe, said upper ram means including a pair of opposed hydraulic actuated pistons for operating said upper seal means;

lower hydraulic ram means having a transverse opening for receiving a pipe and seal means arranged to close about the pipe, said lower ram means including a pair of opposed hydraulic actuated pistons for operating said seal means, said lower ram means being inverted relative to said first ram means; and

chamber means mounted between said first and second ram means and connecting said transverse openings to form a testing chamber.

4,383,437

MONITORING SOLIDS CONTENT OF LIQUID SLUDGES

Adrian R. Parker, St. Austell, England, assignor to Partech (Electronics) Limited, England

Filed Feb. 23, 1981, Ser. No. 236,716
Claims priority, application United Kingdom, Feb. 23, 1980, 8006196
Int. Cl.³ G01N *21/17*
U.S. Cl. 73—61 R **10 Claims**

1. A method of monitoring the solids content of liquid sludge, comprising the following steps in an automatically controlled sequence:

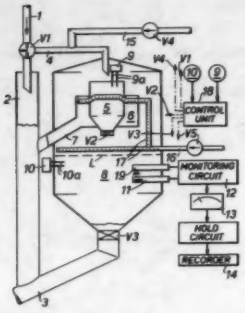
(a) filling a sampling chamber with the liquid sludge;

(b) discharging the sampling chamber into a dilution chamber when a predetermined volume of sludge is contained in the sampling chamber;

(c) filling the dilution chamber with water to a level which corresponds to a predetermined dilution of the sludge;

(d) measuring the solids content of the diluted sludge by

electronic measuring apparatus having a surface in the dilution chamber, and



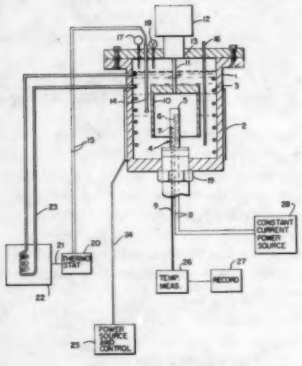
(e) cleaning both the sampling chamber, and the dilution chamber and the measuring apparatus surface by spraying clean water in to them the said chambers.

4,383,438

FOULING TEST APPARATUS

Paul E. Eaton, Cedar Hill, Mo., assignor to Petrolite Corporation, St. Louis, Mo.

Filed Jun. 2, 1981, Ser. No. 269,178
Int. Cl.³ G01N *17/00*
U.S. Cl. 73—61.2 **12 Claims**



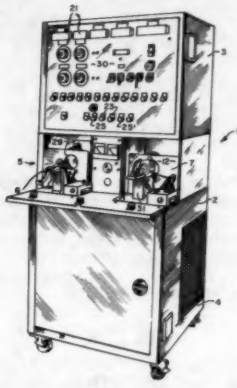
1. Fouling test apparatus comprising:
(a) a cylindrical pressure vessel;
(b) means for controlling the temperature of fluid contained in said pressure vessel;
(c) stationary cylindrical probe means having a metallic surface, positioned in said pressure vessel concentrically with the walls thereof, said probe means including means for heating the probe surface;
(d) cylindrical rotary stirring means open at at least its lower end, positioned in said pressure vessel concentrically with the walls thereof and intermediate said probe means and said pressure vessel walls;
(e) means for rotating said stirring means free of electrical feed-throughs;
(f) means for measuring the temperature of fluid contained in said pressure vessel; and
(g) means for measuring the temperature of the surface of said cylindrical probe means.

4,383,439

FAN LOAD SIMULATED AUTOMATIC MOTOR TEST BOARD

Alexander A. MacCormack, and Vernon E. Kieffer, both of St. Louis, Mo., assignors to Emerson Electric Co., St. Louis, Mo.

Filed Jan. 21, 1981, Ser. No. 226,752
Int. Cl.³ G01M *15/00*; G01L *3/16*
U.S. Cl. 73—116 **21 Claims**



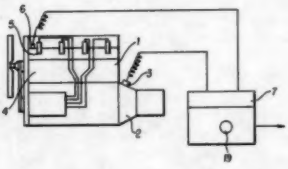
16. In a motor test system for performing operational testing on a motor and load combination, the improvement which comprises means for attaching the load to the motor, said attaching means being disconnected from the motor/load combination during tests, and load means for attachment to the motor, said load means including means for providing direction of rotation and speed information during motor test from a single device removably attached to said motor.

4,383,440

METHOD AND APPARATUS FOR INSPECTING ROUGH IDLING OF A MULTIPLE-CYLINDER ENGINE

Yoichi Murata, Nagoya, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Feb. 3, 1981, Ser. No. 231,024
Claims priority, application Japan, Sep. 27, 1980, 55-134712
Int. Cl.³ G01M *15/00*
U.S. Cl. 73—117.3 **4 Claims**



1. A method of inspecting rough idling of a multiple-cylinder engine, said method comprising the steps of:
obtaining the engine speed;
detecting the time of starting of explosion in each cylinder;
obtaining the minimum value of said engine speed in said time of starting of explosion in each cylinder;
finding differences between said minimum values of every two adjacent cylinders;
finding the average values of said differences between said minimum values in a plurality of cycles;
finding the range of fluctuation of said average value between the maximum value in the plus side and the maximum value in the minus side; and

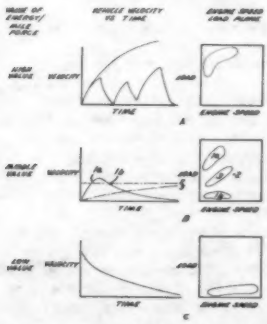
comparing said range of fluctuation with a predetermined set value to inspect the condition of revolution of said engine.

4,383,441

METHOD FOR GENERATING A TABLE OF ENGINE CALIBRATION CONTROL VALUES

Frederick G. Willis, Ann Arbor; Richard R. Radtke, Plymouth; Joseph Ellison, Detroit; Steven R. Fozo, Westland, and Glenn A. Kern, Ann Arbor, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Jul. 20, 1981, Ser. No. 284,891
Int. Cl.³ G01M *15/00*
U.S. Cl. 73—117.3 12 Claims



1. A method for generating a table of spark advance and percent EGR for use by an adaptive vehicle control system having a target emission value, said method comprising:

generating a plurality of vehicle driving cycle segments relating vehicle speed with time;

associating vehicle speed versus time coordinates of a vehicle driving cycle segment with corresponding points of a discrete engine matrix of engine load versus engine speed thus describing engine operation during a driving cycle segment;

determining for each vehicle driving cycle, at each point of the discrete engine matrix, an optimal calibration of engine control variables including percent EGR and spark advance so that fuel economy is maximized at the selected target emission value;

calculating for each vehicle driving segment one energy density representative of energy usage divided by distance traveled during the vehicle driving segment;

correlating each point on the discrete engine matrix of a driving cycle segment with the energy density of the driving cycle segment; and

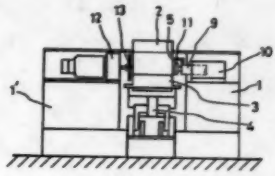
eliminating all but one when there is a plurality of the optimal calibrations of engine control variables associated with a point of a discrete engine matrix as a result of having a plurality of vehicle driving cycle segments to obtain a suggested tag group of engine control variables to be used with the associated energy density thereby defining each suggested tag group of engine control variables as a point on a three dimensional matrix having axes of energy, engine torque and engine speed.

4,383,442

APPARATUS FOR SENSING THE PRESENCE AND POSITION OF A CRANK PULLEY BOLT IN AN INTERNAL COMBUSTION ENGINE

Tadashi Naito, Toyota, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Jan. 21, 1981, Ser. No. 226,543
Claims priority, application Japan, Jan. 22, 1980, 55-6151[U]
Int. Cl.³ G01M *15/00*
U.S. Cl. 73—119 R 10 Claims



1. Means for sensing the presence and position of a crank pulley bolt in a crank shaft of an internal combustion engine to be examined, said means comprising:

(a) sensor jig means to be faced with the crank shaft in the vicinity of a place where the crank pulley bolt is to be assembled to the internal combustion engine, said sensor jig means having a reference portion adapted to engage a predetermined portion of said crank pulley bolt; and

(b) sensor means kept spaced by a predetermined distance from said reference portion of the sensor jig means, and being able to be close to, but spaced from, said crank pulley so as to sense a positional relationship between said reference portion and a corresponding portion of the crank pulley, when the reference portion is set at a sensing place in the vicinity of said place where the crank pulley bolt is to be assembled to the internal combustion engine, on the basis of the comparison between a predetermined electromagnetic energy loss for a case that the crank pulley bolt is properly assembled to the internal combustion engine and an actual electromagnetic energy loss for the internal combustion engine being examined, whereby a difference between the actual loss and the predetermined loss indicates whether the crank pulley bolt is present or not, and whether the crank pulley bolt is properly assembled to the internal combustion engine being examined.

4,383,443

LIQUID-LEVEL MEASUREMENT

Roger M. Langdon, Colchester, England, assignor to The Marconi Company Limited, Chelmsford, England

Filed Jan. 6, 1981, Ser. No. 222,759
Claims priority, application United Kingdom, Jan. 15, 1980, 8001268
Int. Cl.³ G01F *23/28*
U.S. Cl. 73—290 V 10 Claims

1. A liquid-level measuring device comprising, in combination:

in effect, two similar elongate members each adapted to be partially submerged in a liquid, the two elongate members being displaced lengthwise one relative to the other by an odd number of quarter wavelengths ($\lambda/4$), λ being the wavelength of a chosen flexurally-resonant mode of the elongate members;

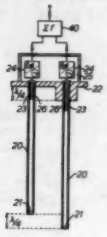
for each elongate member,

flexure wave transmitting means in contact with the member, for launching flexure waves along the member,

flexure wave receiving means in contact with the member, for receiving flexure waves launched by the transmitting means, and

phase detection means, connected both to the transmitting

means and to the receiving means, for detecting and comparing the phase of the flexure waves at the transmitting means with the phase at the receiving means so as to obtain a phase difference measurement the magnitude of which provides an indication of the resonance frequency of the elongate member; and



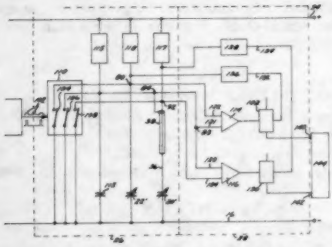
means for operating upon the outputs from the two phase detection means so as to provide an indication of the extent to which the elongate members are immersed in the liquid.

4,383,444

MICROPROCESSOR BASED CAPACITANCE LEVEL DETECTION SYSTEM

Norman V. Beaman, Orange, and Gary B. Sellers, Placentia, both of Calif., assignors to Robertshaw Controls Company, Richmond, Va.

Filed Apr. 21, 1980, Ser. No. 141,908
Int. Cl.³ G01F 23/26
U.S. Cl. 73—304 C 19 Claims



1. A dielectric constant compensated level measuring device comprising:

an elongated ground plane electrode of uniform cross section throughout and having first and second portions;

a reference probe located in spaced parallel relationship to said second portion of said ground plane electrode,

a level measuring probe arranged in spaced parallel relationship to said first portion of said electrode,

a plurality of switches for coupling said level measuring probe and said reference probe to said ground plane electrode; and

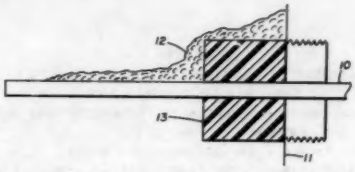
an oscillator for opening and closing said switches.

4,383,445

CAPACITANCE CIRCUIT FOR LEVEL MEASUREMENT

Leon S. Siegel, Sand Springs, and Charles O. Holman, Tulsa, both of Okla., assignors to Combustion Engineering, Inc., Windsor, Conn.

Filed Jan. 29, 1981, Ser. No. 229,436
Int. Cl.³ G01F 23/26
U.S. Cl. 73—304 C 4 Claims



1. An apparatus for detecting the level of a fluid-like material, comprising,

a first primary element capacitor, having a first plate and a second plate, positioned to receive the rising level of fluid-like material in the space separating the first and second plates,

a connection between the first plate of the first capacitor and ground,

a source of periodically varying voltage,

a fixed resistance connected between the voltage source and the second plate of the first capacitor,

a voltage detector connected between the fixed resistance and the second plate of the first capacitor to manifest the voltage appearing at that junction,

a second capacitor of substantially greater capacitance than the first capacitor connected in parallel with the first capacitor,

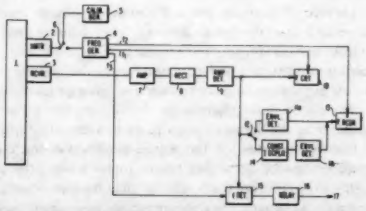
the frequency of the voltage source and the value of the second capacitor being such as to give a capacitive reactance of the circuit of no more than one-tenth the value of resistance of the physical accumulation of the fluid-like material bridging the plates of the first capacitor.

4,383,446

METHOD FOR NON-DESTRUCTIVELY TESTING CONSTRUCTION ELEMENTS

Eckhard Roeder, Lesumer Heerstr. 5, 2820 Bremen 77, Fed. Rep. of Germany, and Wolfgang Flake, Bremen, Fed. Rep. of Germany, assignors to Eckhard Roeder, Bremen, Fed. Rep. of Germany

Filed Mar. 27, 1981, Ser. No. 248,601
Claims priority, application Fed. Rep. of Germany, Apr. 2, 1980, 3012774
Int. Cl.³ G01N 29/04
U.S. Cl. 73—579 2 Claims



1. Method for non-destructively testing construction elements by measuring their resonant oscillations, comprising: exciting a test piece (1) with a narrow band ultrasonic oscillation, varying the oscillation frequency, measuring the ampli-

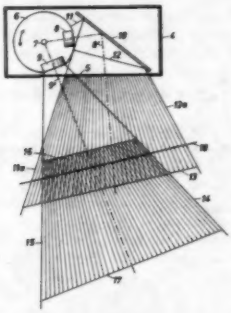
tudes of resonant oscillations in the test piece, and plotting said resonant amplitudes in an xy coordinate system against the frequency of the exciting ultrasonic oscillations, wherein resonant amplitude deviations are directly measured by a constant voltage decoupling of the measured amplitudes of the resonant oscillations, and amplitude envelopes are formed.

4,383,447

ULTRASONIC EQUIPMENT FOR EXAMINATIONS USING SECTION DISPLAYS

Carl Kretz, Zipf, Austria, assignor to Kretztechnik Gesellschaft m.b.H., Zipf, Austria

Filed Jan. 12, 1981, Ser. No. 224,188
Claims priority, application Austria, Jan. 23, 1980, 340/80
Int. Cl.³ G01N *9/24, 29/00*
U.S. Cl. 73—626 **10 Claims**



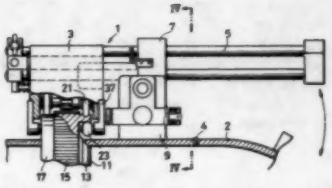
1. Ultrasonic equipment for examining an object by scanning a region of a preselectable section surface of the object near a surface of the object and comprising a scanning mechanism including a housing and two focussing sound transducer heads adapted to be adjusted to the preselected section surface of the object and mechanically operable to move a sound beam across the section surface, focussing of the sound beam transmitted by the transducer head improving the lateral resolution by constricting the sound beam in the preselected region compared with a sound beam transmitted by a comparable unfocussed sound transducer head, the length of the region being smaller than the depth of the scanned section surface in the object and said sound beams having respective relatively constricted length zones disposed in different depth zones of said object, and zone control means operable to activate only one of said sound transducer heads at a time, the equipment further comprising scanning depth control means for adjusting the region to different depths and successively scanning the section surface at said depths, a fluorescent screen arranged to receive and display signals derived from echoes generated in response to the transmitted sound beams at locations of the screen geometrically coordinated with the locations in the object where the echoes originated, selecting means for selecting only those echo signals for display on the screen which originated in the selected region, and means defining respective pre-entry zones for the sound beams transmitted by the transducer heads, the sound beams being transmitted through the pre-entry zones in the scanning meachanism housing before they enter the object, the pre-entry zone associated with one of the sound transducer heads having a predetermined length in the housing while the sound beam transmitted by the other transducer head passes through a pre-entry zone of shorter length.

4,383,448

SEMI-AUTOMATIC SCANNER FOR ULTRASONIC FLAW DETECTION

Hirotsugu Fujimoto; Tsutomu Hayashi, and Tatsukuma Hosono, all of Hitachi, Japan, assignors to Hitachi, Ltd. and Hitachi Engineering Co., Ltd., both of Tokyo, Japan

Filed Sep. 5, 1980, Ser. No. 184,376
Claims priority, application Japan, Sep. 7, 1979, 54-114252
Int. Cl.³ G01N *29/04*
U.S. Cl. 73—637 **10 Claims**



1. A semi-automatic scanner for ultrasonic flaw detection comprising:

carriage means travelling on a guide rail;

arm means extending in a direction transverse to the travel direction of said carriage means and mounted on said carriage means for pivotal movement in a plane transverse to the travel direction;

probe holder means slidably mounted on said arm means;

probe means pivotably mounted by said probe holder means so that said probe means follows a curved surface to be inspected, said probe holder means including first means for enabling pivoting movement of said probe means about a first axis transverse to the travel direction of said carriage means, and second means for enabling pivoting movement of said probe means about a second axis transverse to said first axis, said carriage means being driven by motor means, and said probe holder means being slidably moved along said arm means by a manual operation; and

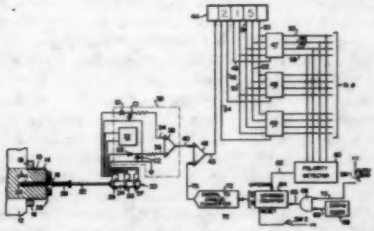
means for controlling the driving speed of said motor means in proportion to the force applied to said probe means.

4,383,449

STRESS MONITORING SYSTEM

John Mickowski, 129 Main St., Franklin, N.J. 07416

Filed May 4, 1981, Ser. No. 259,979
Int. Cl.³ G01B *7/24*
U.S. Cl. 73—764 **7 Claims**



1. A system for monitoring the stress imposed upon a structural member in a machine comprising:

a transducer assembly including means connected to said structural member for providing an electrical analog signal having an amplitude responsive to the stress forces imposed upon said member and a polarity correspinding to tensile or compressive force upon said member;

indicator means responsive to said analog signal for recording the level of stress in said member in appropriate dimensional units and for generating a digital signal corresponding to said analog signal; and

automotive zero means for nulling out any reading in said indicator means under no load condition, said automatic zero means comprising:

means for storing said digital signal;

counter means for sequentially counting in a direction corresponding to the polarity of said analog signal;

manual switch means for enabling said counter means;

means for converting said count to an analog control signal; and

comparator means for comparing said analog signal to said control signal and for providing said indicator means with an input error signal representing the algebraic difference of said compared analog signal and said control signal.

4,383,450

METHOD AND APPARATUS FOR DETERMINING STATIC AND DYNAMIC CHARACTERISTICS FROM A VISCOUS-ELASTIC MATERIAL

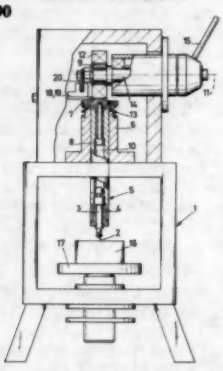
Pierre Pringiers, Stalhille, and Clement De Meersman, Moorsel, both of Belgium, assignors to Bergougnan - Benelux, Belgium

Filed Nov. 26, 1980, Ser. No. 210,605

Claims priority, application Netherlands, Nov. 30, 1979, 7908675

Int. Cl.³ G01N 3/42

U.S. Cl. 73—790 **19 Claims**



1. Method for determining static and dynamic material characteristics, more particularly the elasticity modulus E′ and loss modulus E″, from a viscous-elastic material the relaxation modulus E(t) of which fulfills the equation $E(t)=A+Bt^{-\alpha}$ with E(t) being the relaxation modulus, A and B being constants, and t the time in seconds, as a function of the frequency the material is subjected to, in which to that material the above defined characteristics of which are to be measured, there is applied by means of a force F, a constant predetermined deformation by compression or pressing-in and said deformation is retained for at least 10 seconds and preferably at least 15 seconds, whereby the building-up of force from a moment zero which corresponds to that time where said force is applied, and the decrease after said constant deformation has been reached, is measured as a function of the time, and said material characteristics are determined on the basis of the following formulas:

$$E(t)=f[F_1(a), F_2(b), F(t)] \quad \text{(I)}$$

with

a=impression depth;

b=size and shape of the impression body or section of test sample

$$E(t)=A+Bt^{-\alpha} \quad \text{(II)}$$

$$E^*(\omega)=E'(\omega)+jE''(\omega) \quad \text{(III)}$$

with $\omega=2\pi F$ wherein f is the frequency;

$$E'(\omega)=\frac{\alpha B\omega^{\alpha}}{2(1+\alpha)}\Gamma\left(1-\frac{\alpha}{2}\right)\Gamma\left(\frac{\alpha}{2}\right)+A \quad \text{(IV)}$$

$$E''(\omega)=\frac{\alpha B\omega^{\alpha}}{2\Gamma(1+\alpha)}\Gamma\frac{(1-\alpha)}{2}\Gamma\frac{(1+\alpha)}{2} \quad \text{(V)}$$

wherein Γ is the common gamma function and j is $\sqrt{-1}$.

4,383,451

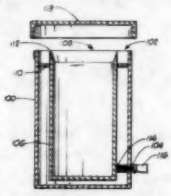
APPARATUS AND METHOD FOR REMOVING MATERIAL

Nimrod T. Chapel, 3804 Green Oaks Way, Edmond, Okla. 73034

Division of Ser. No. 113,192, Jan. 18, 1980, Pat. No. 4,274,676. This application Apr. 10, 1981, Ser. No. 252,846

Int. Cl.³ G01N 1/04

U.S. Cl. 73—864.41 **3 Claims**



1. A system for removing a substance, comprising:

sampling means for sampling the substance to obtain a portion for testing the composition thereof, said sampling means including:

a first open-ended container having an aperture extending through the side wall thereof;

a second open-ended container engaged within said first container for slidable extension through the open end thereof, said second container having a latch-receiving member disposed thereon in alignment with the aperture of said first container;

latch means extending through the aperture of said first container in releasable abutment with the latch-receiving member of said second container for preventing said second container from slidably extending from said first container when said latch means abuts the latch-receiving member; and

closure means for closing the open end of said first container;

coagulent applying means for applying a coating of a coagulant to the substance to be removed when the sampled portion is a predetermined type of substance;

scraping means, associated with said coagulant applying means, for scraping the surface to loosen the substance therefrom; and

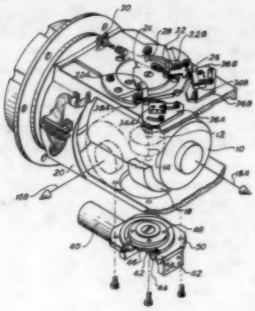
means, associated with said scraping means, for withdrawing the loosened substance from the scraped surface.

4,383,452

TRANSFER MECHANISM FOR A GYROSCOPIC DEVICE

Paul A. Imbeninato, Lyndhurst, and Richard H. Wolff, Hillsdale, both of N.J., assignors to The Bendix Corporation, Teterboro, N.J.

Filed Nov. 3, 1980, Ser. No. 203,011
Int. Cl.³ G01C *19/30*
U.S. Cl. 74—5.47 **13 Claims**



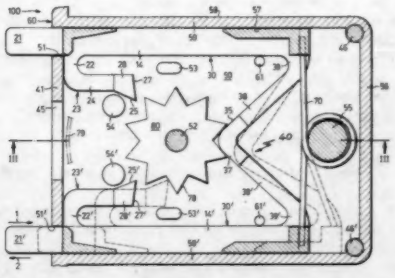
1. A transfer mechanism for rotating a gyroscopic device about its spin axis comprising:
support means for rotatably supporting said gyroscopic device;
restraint means for passively holding said device in one of two angularly displaced positions; and
drive means for driving said device between said two angularly displaced positions, said drive means being operable in response to timing signals of a given repetition rate applied thereto to rotate said device at a rate of rotation proportional to said given repetition rate, said drive means including means for interrupting the drive applied to said device upon its arriving in the vicinity of each of said two angularly displaced positions.

4,383,453

STEPPING MECHANISM

Hansrudolf Lehmann, Zurich, and Hans Wermelinger, Rümlang, both of Switzerland, assignors to Contraves AG, Zurich, Switzerland

Filed Nov. 10, 1980, Ser. No. 205,755
Claims priority, application Switzerland, Dec. 19, 1979, 11247/79; Mar. 20, 1980, 2192/80
Int. Cl.³ F16H *27/02*
U.S. Cl. 74—128 **12 Claims**



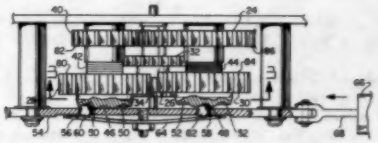
1. A forwardly and rearwardly indexible stepping mechanism, especially for a multi-position switch, comprising:
a housing within which there is arranged said stepping mechanism;
a drive provided for said stepping mechanism;
said drive being provided with two push buttons each operatively correlated with a respective switching direction;
said drive further containing two switching elements, two plungers and a latching element;
a rotatably arranged pinion with which there can be brought into engagement said latching element by a linear work movement;
said pinion being rotatably mounted upon a shaft located essentially at a plane of symmetry of said housing;
a latching cam arrangement provided for said latching element;
said latching cam arrangement being symmetrically arranged with respect to said plane of symmetry of said housing;
a selector wheel operatively associated with said pinion;
a spring coacting with said drive; and
said latching element comprising a bendable latching element which interconnects in a bridge-like fashion both of said plungers, so that said latching cam arrangement in a rest position engages at the pinion for fixedly retaining said selector wheel, but during each complete switching step directed against a restoring force of said spring fully releases the pinion and only after completion of the complete switching step again engages by the action of the force of the spring at the pinion for the renewed fixed retention of the selector wheel.

4,383,454

REVERSIBLE SLIP CLUTCH

Richard A. Calabrese, Newtown, Conn., assignor to Pitney Bowes Inc., Stamford, Conn.

Filed Jul. 7, 1980, Ser. No. 166,664
Int. Cl.³ F16H *5/06*; F16D *21/04*
U.S. Cl. 74—337.5 **6 Claims**



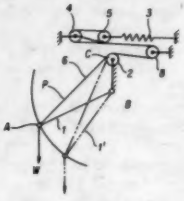
1. A reversible slip clutch, comprising:
a first shaft;
a first spur gear driven by an external source;
a second spur gear rotatably mounted at one end of said first shaft to be rotated by said first spur gear in a direction opposite to the rotation of the first spur gear;
a second shaft;
a third spur gear rotatably mounted at one end of said second shaft to be rotated by said first spur gear in a direction opposite to the rotation of the first spur gear;
a fourth spur gear rotatably mounted inwardly of said second spur gear at the other end of said first shaft;
a fifth, output spur gear rotatably mounted inwardly of said third spur gear at the other end of said second shaft, said output spur gear engaging said fourth spur gear; and
a reciprocating bar having a line of action perpendicular to said first and second shafts for providing alternate inward pressure to said second and third spur gears to thereby urge said second spur gear to frictionally engage said fourth spur gear and said third spur gear to frictionally engage said fifth spur gear, said reciprocating bar including a pair of apertures and a pair of balls seated in said apertures, and the second and third spur gears each including in its outward surface a hemispherical recess and an outer race deeper than and surrounding the hemispherical recess for receiving said balls, whereby when on ball occupies a recess the other ball occupies an outer race.

4,383,455

ARM WITH GRAVITY-BALANCING FUNCTION

Goro Tuda, and Osamu Mizuguchi, both of Kobe, Japan, assignors to Kobe Steel, Limited, Kobe, Japan

PCT No. PCT/JP79/00043, § 371 Date Oct. 21, 1980, § 102(e) Date Oct. 21, 1980, PCT Pub. No. WO80/01774, PCT Pub. Date Sep. 4, 1980
PCT Filed Feb. 22, 1979, Ser. No. 198,132
Int. Cl.³ G05G 1/04; B25J 17/00
U.S. Cl. 74—469 2 Claims



1. An arm assembly which functions to balance the weight of an arm by the action of a spring mechanism, wherein said arm assembly comprises:

a rotary sheave vertically extending directly over the fulcrum of said arm with said rotary sheave being held in a vertical plane regardless of the vertically oscillating movement of said arm; and

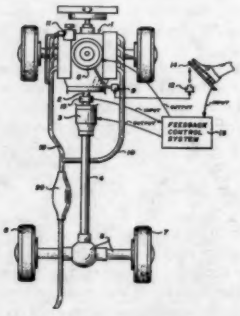
a wire extending from an action point on the center of gravity of said arm over said rotary sheave and is connected to said spring mechanism wherein said spring mechanism has a maximum expansion equal to the distance between the action point and said rotary sheave, thereby counterbalancing the moment produced by the weight of said arm.

4,383,456

APPARATUS USING A CONTINUOUSLY VARIABLE RATIO TRANSMISSION TO IMPROVE FUEL ECONOMY

David P. Ganoung, 4406 Chickasaw Rd., Memphis, Tenn. 38117

Continuation-in-part of Ser. No. 170,017, Jul. 18, 1980, Pat. No. 4,342,298, and a continuation-in-part of Ser. No. 20,916, Mar. 14, 1979, Pat. No. 4,280,469, which is a continuation-in-part of Ser. No. 767,060, Feb. 9, 1977, abandoned, which is a continuation-in-part of Ser. No. 616,640, Sep. 25, 1975, Pat. No. 4,023,641. This application Nov. 10, 1980, Ser. No. 205,625
Int. Cl.³ B60K 41/12
U.S. Cl. 74—866 30 Claims



1. Apparatus for improving the operating efficiency with which power is delivered to a load by an Otto engine controlled by a throttle valve device, said apparatus comprising:

a continuously variable ratio transmission which transfers power from the engine to the load, whereby the torque multiplication ratio range of said transmission may often be used in preference to throttling for regulating the power output from the engine,

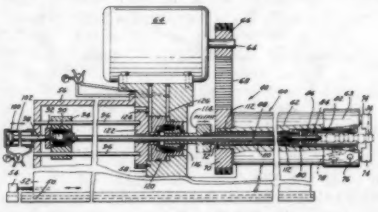
and control system means for implementing unthrottled operation of the engine, said control system means comprising (1) input means for selecting the desired operating speed of the engine, (2) ratio control means operative to adjust the ratio of said transmission to substantially eliminate the difference between said desired operating speed and the actual operating speed of the engine (3) first throttle control means operative to open the throttle valve device to an effectively wide open position when the operating speed of the engine is both substantially equal to said desired engine operating speed and equal to or greater than the minimum value practical for wide open throttle operation of the engine and (4) second throttle control means operative to close the throttle valve device from an effectively wide open position when both the ratio of said transmission is maintained at a constant value and the actual operating speed of the engine significantly exceeds said desired engine operating speed, whereby the high efficiency of unthrottled engine operation is implemented when practical engine speeds and available transmission ratios permit.

4,383,457

WORK SUPPORT AND DRIVE FOR ELONGATE SLENDER PARTS

Thomas J. Corcoran, Troy, Mich., assignor to Snyder Corporation, Detroit, Mich.

Filed Dec. 29, 1980, Ser. No. 220,991
Int. Cl.³ B23B 1/00, 33/00
U.S. Cl. 82—1 C 12 Claims



1. A method of machining elongate, slender parts which are subject to bending under tool pressure which comprises:

(a) mounting an elongate part between centers along a transfer line,

(b) moving a hollow chuck support longitudinally of said mounted part to enclose a portion of said part within said chuck while maintaining said center support,

(c) actuating jaws on said chuck support to grip said part between the centers to drive the part in rotation,

(d) rotating said part through said jaws while machining the exposed end,

(e) releasing said jaws and retracting said chuck support while maintaining said center support to clear a path of transfer motion for said part in a direction transverse to the axis of the part, and

(f) releasing said part from said centers to permit transfer of said part.

3. An apparatus for machining elongate, slender parts which are subject to bending under tool pressure which comprises:

(a) a tailstock center,

(b) a slide base in line with said tailstock center,

(c) a chuck assembly slidable on said slide base, said chuck assembly comprising:

(1) a hollow rotatable chuck core having a central recess to receive one end of a part in a telescoping relationship,

(2) a headstock support center within said core slidable in

relation to said core to contact a part on an end opposite said tailstock center,

(3) first means on said chuck assembly to maintain said headstock support center in contact with a part during relative motion of said chuck core on said slide,

(4) chuck jaws on said chuck core to engage a part to cause rotation of said part on said centers,

(5) second means to actuate said jaws to a part engaging and release position independent of the motion of said chuck assembly on said slide, and

(6) third means to retract said headstock center from said part independently of the motion of said chuck assembly, and

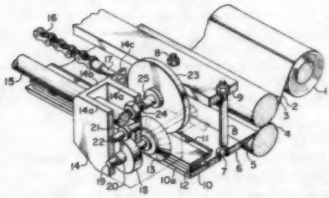
(d) power means to move said chuck assembly on said base to a first position wherein said chuck core is enclosing a portion of said part prior to the engagement of said chuck jaws and to a second position wherein said chuck core is withdrawn from said part subsequent to the release of said chuck jaws.

4,383,458

FILM CUTTER

Makoto Kitai, and Akira Ishida, both of Kyoto, Japan, assignors to Dainippon Screen Seizo Kabushiki Kaisha, Kyoto, Japan

Filed Mar. 3, 1981, Ser. No. 240,232
Claims priority, application Japan, Mar. 5, 1980, 55-29034[U]
Int. Cl.³ B26D *9/00*
U.S. Cl. 83—405 **8 Claims**



1. A film cutter for cutting a strip of film fed out to a cutting area having: a fixed linear blade arranged along the cutting area and a movable blade which can be moved along the fixed linear blade, comprising:

a film holder arranged over the fixed linear blade, biased toward the linear fixed blade by a spring means so as to hold the film stationary while it is being cut;

a cutter carriage which carries the movable blade for moving it in parallel to the fixed linear blade;

a pressure roller, rotatively mounted on the carriage for applying pressure onto the film holder while the cutter carriage moves;

a means for displacing the film holder away from the fixed linear blade for allowing smooth passage of the film therebetween when the cutter carriage has reached to at least one of the end areas of its moving stroke; and

a guide member of a circular cross-section for guiding the motion of the carriage along the fixed linear blade and for pivoting the carriage thereabout so that the reaction which the carriage receives as its pressure roller rolls on the film holder is directed to pressing the movable blade carried by the carriage against the fixed linear blade.

4,383,459

MEAT CUTTER FOR SLICING SOFT-MEAT LOGS

James H. Peters, Cologne, Minn., assignor to Waconia Manufacturing Industries, Inc., Waconia, Minn.

Filed Jun. 22, 1981, Ser. No. 275,692
Int. Cl.³ B26D *3/26, 7/06*
U.S. Cl. 83—411 R **7 Claims**

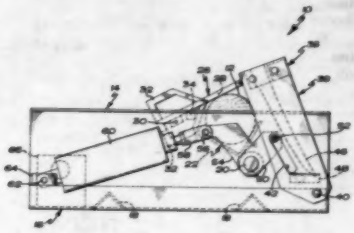
1. A meat cutter for slicing soft-meat logs, said cutter comprising:

trough means for holding a meat log, said trough means having an axis of elongation, said trough means revolving through a first arc about a first axis of revolution, said first axis of revolution being parallel to said axis of rotation of said trough means;

at least one knife blade having a cutting edge;

blade holding means revolving about a second axis of revolution, said second axis of revolution being parallel to said first axis of revolution, each said knife blade being mounted in said blade holding means normal to said second axis of revolution with each said cutting edge facing said trough means; and

means for revolving said trough means and said blade holding means towards each other so as to impart a slicing cut.

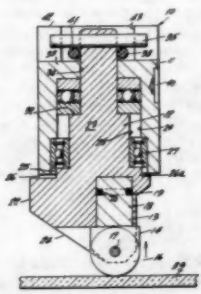


4,383,460

SELF ALIGNING PILLAR POST FOR GLASS CUTTERS

Richard D. Schotter, Glenwood, and Robert P. Heinis, Totowa, both of N.J., assignors to Red Devil Inc., Union, N.J.

Filed Jun. 26, 1981, Ser. No. 277,873
Int. Cl.³ B26D *3/08*
U.S. Cl. 83—886 **11 Claims**



1. A pillar post, glass cutting wheel assembly for a glass cutting machine comprising an elongated housing, having a top and a bottom portion, a bore in said housing communicating with the bottom of the housing, an apertured wall in the housing forming the upper end of the bore, a counter bore in the top of the housing opposite the bore and separated therefrom by the wall, a post swivel rotatably and longitudinally shiftable within the housing comprising a retaining block and an upstanding shank received within and extending above the aperture in the wall, bearing means between the shank and the bore to support the shank within said bore, a glass cutting wheel, a glass cutting wheel holder for said wheel, a cylindrical pillar member on said wheel holder journaled within the post swivel, a transverse pin carried by that portion of the shank which extends above the wall and spaced from the top of said wall, a friction member carried by the shank between the

pin and the wall and means in the housing cooperating with the pin to limit the angle of rotation of the post swivel.

4,383,461

CHORD PERFORMING APPARATUS FOR AN ELECTRONIC ORGAN

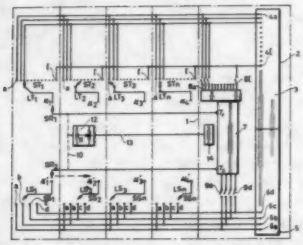
Wilhelmus A. J. Berkers, 1 Harmoniestraat, 5751 SH Deurne, Netherlands

Filed Mar. 28, 1980, Ser. No. 134,893

Claims priority, application Netherlands, Apr. 2, 1979, 7902569

Int. Cl.³ G10F *1/00*

U.S. Cl. 84—1.03 **14 Claims**



1. In combination a chord performing apparatus, an electronic organ provided with performance keys, a rhythm generating unit and a chord-former having at least one first control input means having first switch elements for providing first control signals for defining a chord tone and at least one second control input means having second switch elements for providing second control signals for defining a chord type, and a rhythm output signal derived from the organ in direct response to depression of performance keys of the organ during the playing of the melody of the music, said chord performing apparatus comprising first and second presettable control means for establishing a predetermined sequential pattern of chords of a selected tone and type corresponding to a sequence of the chords of the music to be played, said first and second presettable control means having scannable outputs adapted to be coupled to the organ, means for scanning said outputs in response to rhythm output signal derived from the organ during the playing of the melody of the music, said outputs being adapted to be coupled to the first and second control input means of the cord-former of the organ for generating chords of selected tone and type in said predetermined sequential pattern.

4,383,462

ELECTRONIC MUSICAL INSTRUMENT

Yohei Nagai, and Shimaji Okamoto, both of Hamamatsu, Japan, assignors to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan

Continuation of Ser. No. 784,941, Apr. 5, 1977, abandoned. This application Aug. 8, 1979, Ser. No. 64,917

Claims priority, application Japan, Apr. 6, 1976, 51/38466

Int. Cl.³ G10H *1/00*

U.S. Cl. 84—1.26 **9 Claims**

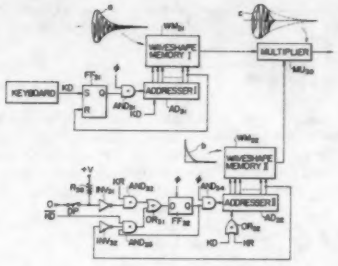
1. An electronic musical instrument of a waveshape memory reading type comprising:

keyboard means for producing key depression and release signals in response to an operation of each key;

a waveshape memory for storing sample values of a waveshape from its attack portion to its decay portion at respective addresses of the memory;

an addresser connected to said waveshape memory and to said keyboard means for addressing the waveshape memory in response to a key depression signal thereby producing a tone signal, said waveshape memory storing a sufficient plurality of cycles of vibration with an amplitude defining at least an attack portion of a tone to constitute a tone waveshape imparted with at least an attack envelope, and

further comprising a second waveshape memory for storing a decaying envelope, a second addresser connected to said



keyboard means, and a multiplier connected to said waveshape memory and said second waveshape memory, said second addresser addressing the second waveshape memory in response to the key release signal, thereby to produce a decay envelope signal, said multiplier multiplying said tone signal and said decay envelope signal.

4,383,463

MUSICAL BELLOWS INSTRUMENT PROVIDED WITH AN ELECTRO-PNEUMATIC CONTROL DEVICE OPERATED BY THE BELLOWS MOVEMENT

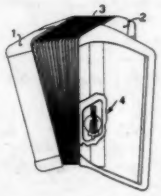
Lucio M. Aliprandi, Ancona, Italy, assignor to Farfisa S.p.A., Ancona, Italy

Continuation of Ser. No. 928,393, Jul. 27, 1978, abandoned. This application Feb. 5, 1981, Ser. No. 231,795

Claims priority, application Italy, Jan. 4, 1978, 19028 A/78

Int. Cl.³ G10D *11/00*; G10H *1/46*

U.S. Cl. 84—1.27 **6 Claims**



1. In a musical instrument having a keyboard and bellows for causing pressure differentials during contraction and expansion and reeds responsive to said pressure differentials to produce a musical output, a control for varying the volume of said musical output, special effects means for providing alteration outputs to alter said musical output and thus provide effects such as brilliancy, fluttering and the like, and preset switch means for presetting the special effects means to be used to alter said musical output, the improvement comprising:

a flexible membrane in communication with the interior of said bellows and responsive to said pressure differentials;

an electronic circuit comprising gate means for gating said alteration outputs to said musical output in accordance with a control voltage supplied through said preset switch means when said preset switch means is closed;

variable switch means connected to said flexible membrane and adapted to provide said control voltage through said preset switch means to enable and disable said gate means in accordance with the movement of said flexible membrane; and

said variable switch means, present switch means, gate means, and special effect means integrated such that the special effects may be changed during playing of the instrument without the need for removal of the musician's hands from the keyboard.

4,383,464

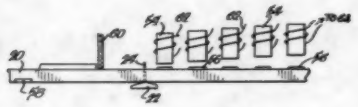
ELECTROMAGNETIC DEVICES FOR ACTUATING PIANO KEYS

John F. Brennan, John F. Kennedy La., Lebanon, Ky. 40033

Division of Ser. No. 206,871, Nov. 14, 1980, Pat. No. 4,338,847. This application Apr. 12, 1982, Ser. No. 367,392

Int. Cl.³ G10F *1/02*

U.S. Cl. 84—21 **7 Claims**



1. In combination with a piano having a piano key mounted for pivotal movement about a fulcrum, said piano key having a rearward end to a rearward side of said fulcrum which moves upwardly upon playing a note, a piano key actuating system comprising a plurality of plugs of ferromagnetic material mounted on and along an upper surface of said rearward end of said piano key; a plurality of electromagnets equal in number to said plugs, each said electromagnet having a winding across which an energizing signal may be applied; and means for mounting each said electromagnet to present a magnetic pole face thereof toward but spaced from an associated one of said plugs, whereby upon application of an energizing signal to one or more of said electromagnet windings said energized electromagnets generate magnetic fields at said pole faces thereof to attract said associated plugs thereto and to raise said rearward end of said key to strike a note on said piano, said means for mounting presenting said pole faces of said electromagnets at distances from said associated plugs which are greater than the maximum upward movement of said plugs upon energization of said electromagnets, so that no contact occurs between said plugs and said pole faces and no extraneous noises are generated upon striking a note.

4,383,465

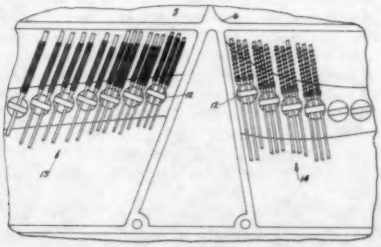
SPACE-WRAPPED STRINGS FOR MUSICAL INSTRUMENTS

Harold A. Conklin, Jr., Hamilton County, Ohio, assignor to Baldwin Piano & Organ Company, Cincinnati, Ohio

Filed Sep. 25, 1981, Ser. No. 305,483

Int. Cl.³ G10D *3/10*

U.S. Cl. 84—199 **10 Claims**



1. A wrapped piano string having a predetermined speaking length, said string comprising a core wire and a wrapping wire wound on the core wire, characterized in that said wrapping wire defines uniformly spaced apart helical convolutions terminating within and adjacent to the ends of the speaking length of the string, the helical convolutions being spaced apart by a distance at least as great as the diameter of the wrapping wire.

4,383,466

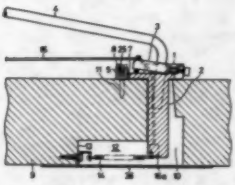
STRING BRIDGE OF ELECTRIC GUITAR

Hisatake Shibuya, Tokyo, Japan, assignor to ESP Co., Ltd., Tokyo, Japan

Filed Aug. 31, 1981, Ser. No. 298,298

Int. Cl.³ G10D *3/12*

U.S. Cl. 84—313 **2 Claims**



1. A string bridge for an electric guitar which includes a sound body having a bore extending vertically between the top and bottom surfaces of the sound body, said string bridge comprising a bridge main part including a generally rectangular top portion arranged to extend transversely of the axis of the guitar for receiving the guitar strings and for pivoting about a forward edge of said top portion to produce a tremolo effect, said bridge main part also including an integral stem portion arranged to extend vertically downwardly of said top portion into the bore in the sound body so that said stem portion can be swung together with said top portion from an initial position at which said stem portion abuts a confronting surface of the bore, spring means connected between the lower part of said stem portion and the sound body for biasing said stem portion at said initial position, an elongate member arranged to be fixed to the top surface of the sound body so as to extend transversely of the axis of the guitar, a pair of pivot shafts arranged to extend outwardly from the ends of said elongate member coaxially with one another, said top portion including a pair of arms extending from the ends of its forward edge for pivotally engaging said pair of pivot shafts and for defining an elongated cutout in said forward edge within which cutout said elongated member is located.

4,383,467

SNARE DRUM MODULATOR

William E. Glassford, Jr., 56 Jefferson St., P.O. Box 312, Westville, Ind. 46391

Filed Jun. 29, 1981, Ser. No. 278,877

Int. Cl.³ G10D *13/02*

U.S. Cl. 84—415 **4 Claims**

1. A device for adjusting the tension of snares extending diametrically across a head of a snare drum shell comprising:

(a) a support bracket which can be secured to an opening in the drum shell to mount the device to the exterior of the drum without removal of the drum head;
(b) an operating handle pivotally connected to said support bracket for movement relative to the drum; and
(c) tensioning means operatively connecting said operating handle to the drum and the snares, said tensioning mean including a biased roller assembly comprising an elongated member with a first end pivotally connected to said operating handle and a second end including a roller which contacts the drum shell, said biased roller assembly further comprising a spring joining the second end of the elongated member to the drum shell to maintain tension between the operating handle and the drum shell as the operating handle is moved

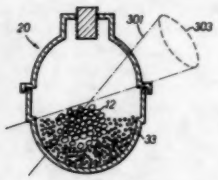
whereby movement of the operating handle relative to the drum changes the tension of the snares and displaces the snares axially relative to the head to modulate the pitch of the drum as the drum is being played.

4,383,468

METHOD OF PRODUCING FRAGMENTABLE CASINGS AND PRODUCT OBTAINED

Swan L. Sie, Zaandam, Netherlands, and Lars Ringdal, Zug, Switzerland, assignors to Eurometaal N.V., Zaandam, Netherlands and Sinterplast Etabl., Vaduz, Liechtenstein

Filed Nov. 23, 1979, Ser. No. 96,754
Claims priority, application Switzerland, Dec. 22, 1978, 13081/78
Int. Cl.³ F42B *13/18, 13/48*
U.S. Cl. 86—1 R **15 Claims**



1. A method of producing a fragmentation casing for an explosive ordnance article of the type having a charge substantially enclosed by a casing member for explosive disintegration thereof upon ignition of said charge, said casing having an integral structure combining a wall formed of an organic polymer composition and a plurality of preformed metal fragments, said method comprising the steps of:

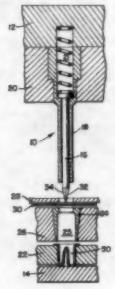
(A) introducing a predetermined quantity of a normally solid polymer composition in the form of fine particles capable of coalescing and melting at an elevated temperature, and a predetermined quantity of said preformed metal fragments into a cold shell mold provided with a thermally conducting shell mold wall and having an interior surface shaped to substantially correspond with the outer shape of said casing; said predetermined quantity of said polymer composition being sufficient to form a continuous layer of said polymer composition in a molten form on said interior surface of said shell mold wall and said predetermined quantity of said metal fragments being sufficient to form a layer of said metal fragments on said continuous layer of said polymer composition; and said metal fragments having a mean particle size that is at least twice as large as the mean particle size of said fine particles of said polymer composition;
(B) closing said shell mold containing said fine particles of said polymer composition and said metal fragments and slowly rotating said closed shell mold about at least two different axes of rotation;
(C) externally heating said closed and revolving shell mold with a heated fluid having a temperature above that temperature which causes melting of said polymer composition;
(D) continuing said heating of said revolving shell mold until a coherent and substantially uniform layer of said melted polymer composition has formed on said interior shell mold surface, said layer being covered on its inner surface with a layer of metal fragments adhering thereto;
(E) cooling said revolving shell mold, and
(F) discharging the casing formed in said mold.

4,383,469

APPARATUS AND METHOD FOR COVERING PRIMER FLASH HOLES

John T. MacMillan, No. Little Rock, Ark., assignor to Remington Arms Company, Inc., Bridgeport, Conn.

Filed Jul. 23, 1981, Ser. No. 286,283
Int. Cl.³ F42B *5/02, 9/02*
U.S. Cl. 86—10 **16 Claims**



1. Apparatus for covering flash holes formed in the closed end of a tubular primer battery cup open at the other end comprising:

(a) tooling means including a biased inner punch positioned and slideable axially within an outer punch;
(b) carrier means for transporting the primer battery cup to a position below said tooling means so that its open end faces and is aligned with said punches; and
(c) covering means positioned between said tooling means and said carrier means whereby the downward movement of said tooling means will cause said punches to pierce and slit said covering means and will cause the pierced portion of said covering means to be blanked, inserted and seated into the open end of the battery cup to cover the flash holes at its closed end.

9. A method for covering flash holes formed in the closed end of a tubular primer battery cup open at the other end comprising:

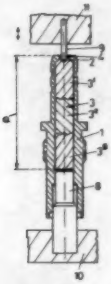
(a) transporting the battery cup to a tooling station with the open end of said cup facing upward;
(b) providing a strip of covering medium above said open end;
(c) piercing said strip so as to cause it to slit predictably;
(d) blanking a disc-shaped portion of said strip which has been pierced at its center;
(e) inserting said disc-shaped portion into the open end of the battery cup; and
(f) seating said disc-shaped portion at the closed end of the battery cup to cover said flash holes.

4,383,470

PROCESS FOR MANUFACTURING A SMALL FIRING TUBE OPENED AT THE TWO ENDS THEREOF FOR A HAND GRENADE FUSE

Hans Assmann, Schwanenstadt, Austria, assignor to Oregon Etablissement für Patentverwerting, Liechtenstein

PCT No. PCT/EP80/00060, § 371 Date Apr. 1, 1981, § 102(e) Date Mar. 31, 1981, PCT Pub. No. WO81/00450, PCT Pub. Date Feb. 19, 1981
PCT Filed Jul. 17, 1980, Ser. No. 253,520
Claims priority, application Austria, Aug. 1, 1979, 5273/79
Int. Cl.³ C06D 1/08
U.S. Cl. 86—20 R 2 Claims



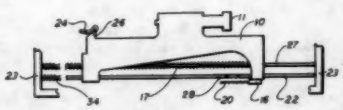
1. A method for producing a tubular delay charge carrier for a hand grenade fuze, said carrier being open on both sides, a detonating charge being only ignited if a delay charge is contained in said carrier, wherein a tubular delay charge carrier closed on one side by a bottom part is made, said delay charge is filled into said carrier and the filling height is measured subsequently, whereupon said bottom part of said carrier is perforated only if the filling height of said delay charge is sufficient.

4,383,471

WEAPON CHARGER

Clifford E. La Fever, Mission Viejo, Calif., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Mar. 9, 1981, Ser. No. 241,915
Int. Cl.³ F41F 19/16
U.S. Cl. 89—1 K 10 Claims



1. A charger for a bolt carrier of a weapon, said carrier having a forward facing shoulder, said charger comprising:

a rod having a longitudinal depression mounted in said weapon;

a charging block slidably mounted about said rod and having a lateral passage reaching said rod; and

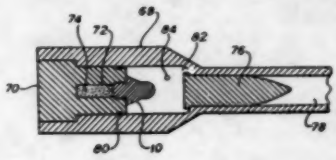
a key mounted in said lateral passage and operable to engage said shoulder, said key being inwardly moveable upon reaching said depression of said rod to disengage said shoulder.

4,383,472

PRIMER DEVICE

LeRoy Stansbury, Jr., and William F. Donovan, both of Aberdeen, Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Division of Ser. No. 89,020, Oct. 29, 1979, Pat. No. 4,333,383.
This application Nov. 6, 1981, Ser. No. 318,890
Int. Cl.³ F41F 1/04
U.S. Cl. 89—7 3 Claims



1. A method for firing projectiles from a barrel including a breech body and loaded with one of said projectiles and having an interspace for the main liquid propellant charge between said breech body and said loaded projectile, said breech body having a cavity filled with a primary propellant and a coupling device having a passageway sealable at its inlet end with a check valve and at its outlet end with replaceable frangible seals, and said barrel having apparatus for piping and sealing liquid propellant between said barrel body and the loaded one of said projectiles, comprising the steps of:

a. installing one of said frangible seals in said coupling device;

b. sealingly mounting said coupling device and its passageway over said cavity with said check valve adjacent said cavity;

c. loading one of said projectiles into said barrel,

d. loading said coupling device and body into said barrel;

e. sealing said breech body and its attached coupling device to the breech of said barrel;

f. filling the interspace between said breech body and the loaded one of said projectiles with said liquid propellant;

g. sealing said liquid propellant within said barrel; and

h. igniting said primary propellant to launch the loaded one of said projectiles.

4,383,473

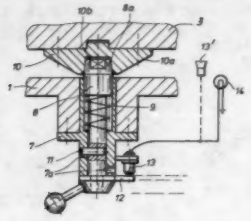
APPARATUS FOR LOCKING THE SUPPORT OF AN ELEVATIONALLY AIMABLE WEAPON

Gert Kaustrater, Augsburg, Fed. Rep. of Germany, assignor to Industrie-Werke Karlsruhe Augsburg Aktiengesellschaft, Karlsruhe, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 97,647, Nov. 27, 1979, Pat. No. 4,336,744. This application Nov. 10, 1980, Ser. No. 205,687
Claims priority, application Fed. Rep. of Germany, Nov. 29, 1978, 2851604
Int. Cl.³ F41H 7/02
U.S. Cl. 89—40 K 6 Claims

1. An apparatus for securing and releasing a weapon support of an armored vehicle from inside the turret of the vehicle, comprising a casing fixed in the turret and forming a guideway communicating with the exterior and interior of the turret, a bolt axially received in the guideway having one end exterior to the turret, a handle connected to the other end of the bolt interior to the turret for rotating the bolt about 180° within the guideway, a bore in the weapon support for receiving the one end of the bolt, a spring axially biasing the one end of the bolt into engagement with the bore, an index pin connected to the bolt and extending transverse to the axis of the bolt, a gate in the casing for receiving the index pin, the gate including a helical track and a guide surface opposite the track for engaging the index pin in response to axial movement of the bolt, the index pin communicating with the track and being movable

between latching, unlatching, and intermediate latching positions when the bolt is rotated in the casing, and run-on surfaces on the weapon support adjacent to the bore, the one end of the bolt engaging the run-on surfaces when the index pin is in the



intermediate latching position whereby swivel movement of the weapon support causes the run-on surfaces to axially move the bolt against the force of the spring and the guide surface to guide the pin into the latching position.

4,383,474

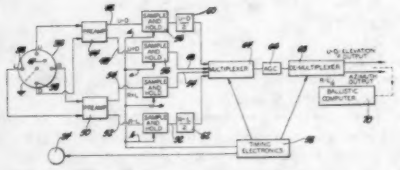
MUZZLE POSITION SENSOR

Donald L. Paurus, Delano, and Evert E. Lehtola, Mound, both of Minn., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed May 9, 1980, Ser. No. 148,426

Int. Cl.³ F41G *3/00*

U.S. Cl. 89—41 ME **1 Claim**



1. In a military vehicle having a main gun, improved means for detecting gun muzzle deflection comprising a pulsed infrared light beam source on the gun near the breech end of the gun; a reflector mounted on the gun muzzle to receive the light beam and reflect same back toward the breech; a detector **(36)** mounted on the gun near the gun breech in the path of the reflected beam, whereby the detector senses changes in the direction of the beam caused by muzzle deflection; said detector comprising a depletion-mode lincar photodiode sensor having four output terminals U, D, R and L oriented, respectively, directly above, directly below, directly to the right, and directly to the left of the detector optical axis representing zero muzzle deflection; first amplifier means **(44)** connected to the U and D terminals to develop a first light detector signal **(46)** representing the difference between the U and D outputs, and a second reference signal **(48)** representing the sum of the U and D outputs; second amplifier means **(50)** connected to the R and L terminals to develop a third light detector signal **(52)** representing the difference between the R and L outputs, and a fourth reference signal **(54)** representing the sum of the R and L outputs; means **(60)** and **(62)** for dividing the first and third detector signals in two; a sample and hold unit **(56)** receiving each of the two light detector signals and two reference signals to produce time-staggered signals; a multiplexer **(64)** receiving the time-staggered signals for simultaneous transmission thereof; an automatic gain control receiving the multiplexed signals for adjusting the two light detector signals up or down inversely according to the absolute values of the second and fourth reference signals; and circuit means for applying the adjusted first and third detector signals as corrections to a main gun ballistic computer.

4,383,475

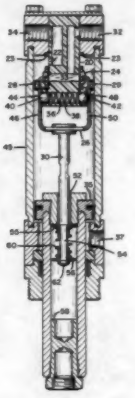
HYDRAULIC CYLINDER AND PISTON WITH AUTOMATIC RECIPROCATION VALVE

Vernon K. Quarve, Minneapolis, Minn., assignor to Graco Inc., Minneapolis, Minn.

Filed Mar. 9, 1981, Ser. No. 241,668

Int. Cl.³ F01B *7/18*; F01L *23/00*

U.S. Cl. 91—337 **18 Claims**



1. In a reciprocable motor of the type having a piston reciprocable within a cylinder under the influence of pressurized fluid selectively valved into the cylinder to reciprocate the piston, the improvement in fluid valving comprising

(a) a neck axially projecting into one end of said cylinder

(b) a fluid inlet port opening into said cylinder through a first position on said neck, and a fluid outlet port opening into said cylinder through a second position on said neck;

(c) a slidable collar attached about said neck, said collar sized and slidable over said neck to cover either said fluid inlet port or said fluid outlet port; and

(d) means for sliding said collar, coupled to said piston, into covering relationship relative to said fluid inlet port and said fluid outlet port.

4,383,476

APPARATUS FOR CONTROLLING A SINGLE ACTION OPERATING CYLINDER, ESPECIALLY OF A PRESS OPERATING CYLINDER

Roland Ewald, Lohr/Main, Fed. Rep. of Germany, assignor to G. L. Rexroth GmbH, Fed. Rep. of Germany

Filed Oct. 27, 1980, Ser. No. 201,300

Claims priority, application Fed. Rep. of Germany, Oct. 29, 1979, 2943642

Int. Cl.³ F15B *11/08*

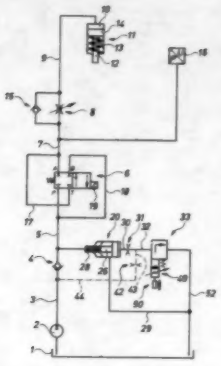
U.S. Cl. 91—442 **4 Claims**

1. An apparatus for controlling a single action piston and cylinder having means biasing the piston toward a retracted position within the cylinder and having a first non-return valve openable toward the cylinder connecting the cylinder with a fluid pressure source, comprising

a control valve having an inlet in fluid communication with the cylinder, an outlet in fluid communication with a supply tank and a control port in fluid communication with the fluid pressure source, said control valve including a control element movable between open and closed positions for controlling flow of fluid pressure from said inlet to said outlet, said control element being spring

biased toward said open position and forced toward said closed position by pressure entering through said control port; and

a proportional valve regulating the pressure entering through said port, said proportional valve including a



valve element in fluid communication with the fluid pressure source through a first conduit having a first restrictor therein and being in fluid communication with said control port of said control valve through a second conduit having a second restrictor therein.

4,383,477

VENTILATOR

Gösta Nilsson, Gemla, and Hans Lundin, Halmstad, both of Sweden, assignors to A B Gemla Plast, Gemla, Sweden

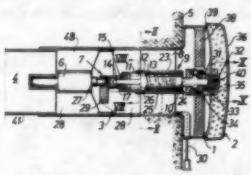
PCT No. PCT/SE80/00301, § 371 Date Jul. 16, 1981, § 102(e) Date Jul. 16, 1981, PCT Pub. No. WO81/01606, PCT Pub. Date Jun. 11, 1981

PCT Filed Nov. 26, 1980, Ser. No. 285,094

Claims priority, application Sweden, Nov. 26, 1979, 7909764

Int. Cl.³ F24F *11/00*

U.S. Cl. 98—41 AV **7 Claims**



1. A ventilator for the supply of outside air to a room, comprising:

a valve seat fixed relative to said ventilator;

a valve body movable relative to said seat in an axial direction between an open position and a closed position;

means connecting said ventilator to an air duct for supplying air to an opening defined by said valve body and valve seat when said valve body is in said open position;

operating means for moving said valve body between said open and closed positions; and

latching means for maintaining said valve body in said open and closed positions, said latching means further comprising:

(a) a tubular sleeve fixed relative to said valve seat and extending in said axial direction,

(b) at least two axial grooves in said tubular sleeve, the circumferential portions between said grooves at a first end of said tubular sleeve being formed as a pair of circumferentially spaced slant surfaces sloped in the same direction and connected by an axial surface, said first end of said sleeve facing said valve body,

(c) bearing means positioned in said sleeve, said bearing means including guide lugs in each of said grooves for guiding said bearing means along an axial path in said sleeve, said bearing means having a first end engageable with said operating means for moving said bearing means along said path in a first directional sense, said bearing means having a second end facing said valve body, said second end having a circumferential array of alternately oppositely sloped slant surfaces forming alternate peaks and troughs, one of said peaks being circumferentially positioned at each said guide lug, whereby one said peak is movable in each said groove,

(d) an end sleeve positioned in said tubular sleeve and fixed to said valve body, said end sleeve including teeth positionable in each of said grooves between said guide lugs and said first end of said tubular sleeve, each of said teeth having a first end opposite said valve body, said first end including a circumferentially slanted surface sloped in the same direction as said slant surfaces of said first end of said tubular sleeve, and

(e) means for biasing said end sleeve in a second directional sense opposite said first directional sense and away from said valve body.

4,383,478

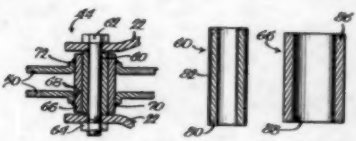
RAIN CAP WITH PIVOT SUPPORT MEANS

W. Richard Jones, North Barrington, Ill., assignor to Mercury Metal Products, Inc., Schaumburg, Ill.

Filed Jul. 29, 1981, Ser. No. 287,885

Int. Cl.³ F23L *17/02*

U.S. Cl. 98—59 **3 Claims**



1. In a gravity-actuated protective cover device adapted to be secured to an upstanding exhaust conduit of an engine open at its upper end to prevent entry of undesirable material during inoperative stages of said engine, said cover member including a looped band portion encircling said conduit and having spaced ears on opposite ends with tightening means extending through said ears to secure said looped band on said exhaust conduit, a cover member and balance arm supported on said ears, and pivot support means pivotally supporting said cover member and balance arm between said ears, the improvement of said pivot support means comprising a spacer between said ears, fastener means securing said spacer between said ears, and a sleeve carried by said cover member and balance arm and rotatable on said spacer, said spacer having a hardened chrome peripheral surface, and said sleeve having a permanent lubricant impregnated inner surface in engagement with said peripheral surface to extend the service life of said pivot support means.

4,383,479

COCONUT HUSK REMOVING TOOL

Edward D. Hill, 11212 Edgewater Dr., Cleveland, Ohio 44102

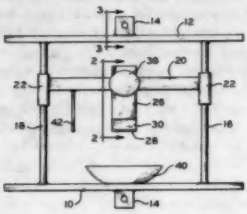
Filed Aug. 28, 1981, Ser. No. 297,428

Int. Cl.³ A23N *5/03, 5/08*

U.S. Cl. 99—572 **10 Claims**

1. A device for removing the husk from a coconut comprising a pair of blades arranged flatwise against each other, means for forcing said blades into the coconut husk, a hinged connec-

tion between end portions of said blades, means to hold one blade stationary, and means for pivoting the other blade away



from the one blade about said hinged connection thereby to tear away a portion of the husk.

4,383,480

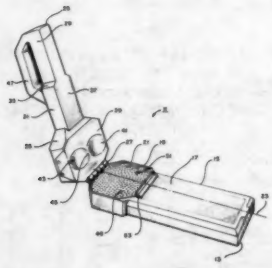
CAN CRIMPING AND FOLDING DEVICE

Ody K. Jerden, 5000 Edinburgh #102, Tyler, Tex. 75703

Filed Sep. 24, 1981, Ser. No. 305,133

Int. Cl.³ B30B *1/04, 9/32*

U.S. Cl. 100—98 R **7 Claims**



1. A can crimping and folding device, comprising:

a base plate having a crimping area and a folding area, said areas being adapted to sequentially receive a can, the length of which is transversely aligned with the longitudinal axis of said base plate;

a pivotable handle attached at one end of said base plate for rotation toward and away from said base plate, said handle having an elongated, two-position, can crimping portion adapted to meet said base crimping area and a can folding portion adapted to meet said base folding area; and

said can folding portion of said handle having double concave depressions therein.

4,383,481

TUBULAR STENCIL UNIT FOR SCREEN PRINTING

Mathias Mitter, Falkenstr. 57, 4815 Schloss Holte, Fed. Rep. of Germany

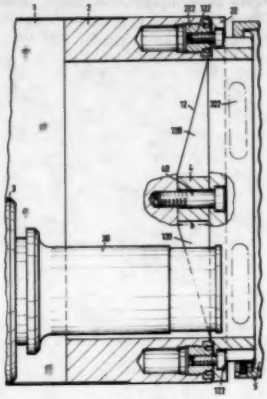
Filed Aug. 28, 1980, Ser. No. 182,325

Claims priority, application Fed. Rep. of Germany, Sep. 6, 1979, 2936003

Int. Cl.³ B41L *13/04*

U.S. Cl. 101—116 **8 Claims**

1. Stencil unit for screen printing machines, comprising a tubular stencil having spaced axial end portions; an end ring at each of said end portions, each of said end rings having an inner opening and a circumferential wall and at least one of said end rings having in said wall thereof at least one throughgoing opening communicating with the respective inner opening and affording access to such inner hollow in a direction diagonally of said one end ring, said one end ring including two axially adjacent annular components having juxtaposed end faces and one of said end faces being axially recessed in a direction away from the other end face in at least one circumferential location and defining with the other end face a gap which constitutes said inner opening; a sleeve bridging said gap and bearing upon each of said end faces; and means for releasably connecting said components across said gap.



4,383,482

PRINTING MASK FOR USE IN PRINTING ON A BOARD HAVING A PROJECTED PORTION AND MANUFACTURING PROCESS THEREFOR

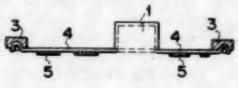
Tsukasa Ito, Toda, Japan, assignor to Clarion Company, Ltd., Tokyo, Japan

Filed Jul. 9, 1981, Ser. No. 281,594

Claims priority, application Japan, Jul. 9, 1980, 55-92781

Int. Cl.³ B41F *15/36*

U.S. Cl. 101—127 **10 Claims**



1. A printing mask for use in printing on a board having an outwardly projecting portion thereon, said mask comprising:

a screen member;

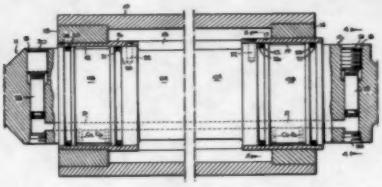
a tensioning frame member, said screen tensed into a planar configuration thereon; and

a rigid member having at least a portion thereof configured with a planar annular region fixedly attached in a continuous path around an interior portion of said screen member, at least a part of said interior portion of said screen member being removed to permit passage of said projecting portion therethrough during printing, said attachment to said annular region permitting retention of tension in the exterior portions of said screen.

4,383,483
HYDRAULICALLY-ACTUATED MANDREL FOR A DEMOUNTABLE PRINTING CYLINDER

Lester I. Moss, Hackensack, N.J., assignor to Mosstype Corporation, Waldwick, N.J.

Filed Oct. 6, 1980, Ser. No. 194,616
Int. Cl.³ B41F 13/10, 13/20
U.S. Cl. 101—375 5 Claims



1. The combination of a mandrel assembly and a standard printing cylinder supported thereby in a printing machine having bearings, said cylinder having annular heads fitted therein at each end said heads projecting radially inward from the inner surface of the cylinder, each head being provided with a circular bore, said cylinder, being demountable on said assembly, said assembly comprising:

A. a tube receivable within said cylinder;

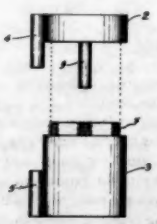
B. respective journals joined to opposing ends of the tube and extending axially therefrom for insertion in said machine bearings, a respective journal having an expansible metal sleeve pinned thereon whose normal dimensions are such that the respective said sleeve fits into the bore of a respective end head of the cylinder, each said sleeve surrounding an annular hydraulic chamber formed on each of said journal, said chamber communicating through an internal duct filled with hydraulic fluid to a lateral bore in each said journal adjacent one end of said tube, each journal having a leading section which is shrunk fit into an end of said tube and an intermediate section which is surrounded by said sleeve and is relieved to define said annular hydraulic chamber; and

C. a piston received in each said lateral bore whose foot is engaged by a piston screw and whose face subjects said fluid to pressure, whereby when said screw is turned in, the resultant pressure is transmitted by the fluid to the respective said sleeve to effect expansion thereof, causing the respective said sleeve to grip said end head.

4,383,484
PRIMER ASSEMBLY

William B. Morrey, Brownsburg, Canada, assignor to CXA Ltd., North York, Canada

Filed Nov. 10, 1980, Ser. No. 205,422
Claims priority, application Canada, Dec. 7, 1979, 341463
Int. Cl.³ C06C 5/04
U.S. Cl. 102—275.3 6 Claims

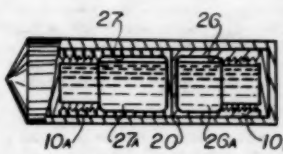


1. A delay primer assembly comprising a first cup-like shell unit containing a primer explosive charge and a second hollow shell unit having a hollow cylindrical projecting element containing a non-electric delay blasting cap to which is operatively connected a signal carrier and a sensor element, the said delay blasting cap, signal carrier and sensor element being hermetically sealed entirely within the said second hollow shell unit, the first and second shell units being interlockingly interconnectable in such a manner that the said projecting element of the said second hollow shell unit containing the said blasting cap is close-fittingly inserted into a cylindrical receiving recess contained in the said primer explosive charge, the initiation of the said second shell unit blasting cap causing detonation of said first shell unit primer explosive charge, both said first and second shell units having integrally attached to their outer walls aligned guide means by which a detonating cord may be brought into slidable initiating contact with the said sealed sensor element.

4,383,485
BALLISTIC PROJECTILE

Arthur D. Coates; William F. Donovan; John A. Rakaczky, all of Harford City, Md., and Wayman E. Scott, Knoxville, Tenn., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Apr. 11, 1980, Ser. No. 139,372
Int. Cl.³ F42B 11/24
U.S. Cl. 102—364 4 Claims



1. A hermetically sealed ballistic projectile comprising:

nose means, having a rearwardly increasing diameter and a rearward region of decreased diameter and a rearward surface;

shell means, having a rearward inner surface and interior space and a forward most region, said forward most region having an inner surface of mating diameter with said nose means rearward region of decreased diameter and being in fixed but frangible contact with said nose means, which includes

an exterior steel case which is scored when it travels through the gun barrel and fragments in longitudinal strips upon impact;

piston means, having a forward most surface, said piston means being in hermetically sealed engagement with the inner surface of the forward most region of said shell means and having its forward most surface proximate the rearward surface of said nose means;

inner container means for isolating the mixing of reactive oxidizing materials until impact of said projectile which includes;

a first capsule axially disposed in said shell means and having a first cavity therein;

a second capsule axially disposed in said shell means and in tandem with said first capsule, said second capsule having a second cavity therein;

first reactive oxidizing material filling and hermetically sealed within said first cavity of said first capsule;

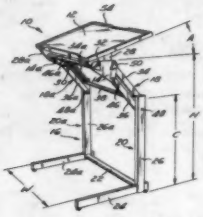
second reactive oxidizing material filling and hermetically sealed within said second cavity of said second capsule;

wherein upon impact said fragmentary longitudinal shell strips combined with the pyrophoric action resulting from the mixing of said first and second reactive oxidizing material with target material increases the lethality of said projectile against unarmored organic targets.

4,383,486
DESK FOR HANDICAPPED PERSONS

Richard G. Reineman, Newport Beach, and Jean O. Reinecke, La Canada, Flintridge, both of Calif., assignors to Roi-Fol Table, Inc., Van Nuys, Calif.

Filed Jul. 28, 1980, Ser. No. 173,114
Int. Cl.³ A47F 5/12
U.S. Cl. 108—2 **25 Claims**



1. A desk for use by a handicapped or disabled person, comprising:
- a desk top for supporting books, paper and the like;
- a base for supporting said desk top, said base being dimensioned and constructed without obstructions so that it will accomodate a wheel chair, and the like, which may be used by said handicapped or disabled person;
- lever arm means for attaching said desk top to said base and permitting the adjustability of the height of said desk top, said lever arm means including:
  - torsional means for facilitating said adjustment of the height of said desk top by said handicapped or disabled person;
  - first locking means for selectively fixing the height of said desk top when said locking means is unlocked and permitting adjustments in the height of said desk top when said locking means is unlocked; and
  - first frictional means for assisting said torsional means in maintaining the height of said desk top when said locking means is unlocked to further facilitate said adjustment in the height of said desk top by said handicapped or disabled person;
- means for mounting said desk top on said lever arm means and permitting adjustability of the angle of said desk top independent of the adjustment of the height of said desk top, said mounting means comprising:
  - second locking means for selectively fixing the angle of said desk top when said locking means is locked and for permitting adjustments in the angle of said desk top when said locking means is unlocked; and
  - second frictional means for maintaining the angle of said desk top when said locking means is unlocked to further facilitate the adjustment of said desk top by said handicapped or disabled person.

4,383,487
REMOVABLE TRAY FOR MICROPHONE STANDS

Marcel Fitzner, 1672 Cerro Gordo and Vesta P. Pinnell, Jr., P.O. Box 2894 both of Santa Fe, N. Mex. 87501

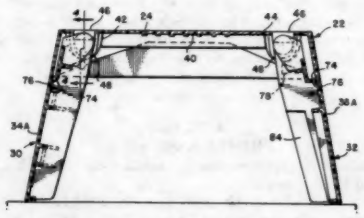
Filed Jun. 15, 1981, Ser. No. 273,395
Int. Cl.³ A47B 85/00
U.S. Cl. 108—27 **9 Claims**

1. A detachably attached tray for uprights, said tray comprising in combination:
- (a) a first section for defining a part of said tray and including a first edge;
- (b) a second section for defining the remaining part of said tray and including a second edge;
- (c) pivot means for pivotally attaching said first section to said second section;
- (d) mounting means disposed within said first and second edges for encircling the upright on pivoting of said first and second sections toward one another to mate said first and second edges;
- (e) a first radially oriented flange and a third radially oriented flange depending from said first edge of said first section, said first and third flanges being diametrically aligned with one another;
- (f) a second radially oriented flange depending from said second edge of said second section, said second flange being positionable intermediate and in alignment with said first and third flanges on mating of said first and second edges; and
- (g) latch means for engaging said first, second and third flanges to maintain said second flange intermediate said first and third flanges and preclude pivotal movement of said first and second sections apart from one another and maintain said mounting means in engagement with the upright.

4,383,488
FOLDABLE STOOL

Jan M. Macho, La Canada, and Richard O. Oxford, Los Angeles, both of Calif., assignors to Dial Industries, Inc., Los Angeles, Calif.

Filed Aug. 22, 1980, Ser. No. 180,413
Int. Cl.³ A47B 3/00
U.S. Cl. 108—129 **21 Claims**



1. A folding stool, comprising:
- a top;
- leg members on opposite ends of said stool movable selectively to extended stool support positions and folded retracted positions;
- interengaging attachment means pivotally and rectilinearly movably connecting said leg members and said top;
- said interengaging attachment means including:
  - lugs extending down from the underside of said top;
  - attachment guide means on said lugs having open top ends and curvilinear closed bottom ends;
  - said leg members having support surface contacting ends and stool attachment ends;
  - circular knobs on said stool attachment ends of said leg members;
  - said circular knobs being operatively engaged with said

attachment guide means and conjointly coactable therewith for selective pivotal and rectilinear movement of said leg members to said extended stool support positions and to said folded retracted positions, said leg members in the extended positions being selectively rectilinearly movable into and out of a locking interengagement with said top.

4,383,489

EMBROIDERY PATTERN FORMING MACHINE

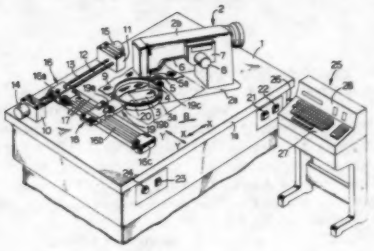
Akira Sugiyama, and Kunio Hirota, both of Nagoya, Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed Feb. 24, 1981, Ser. No. 237,422

Claims priority, application Japan, Mar. 7, 1980, 55-29634

Int. Cl.³ D05C *9/06*; D05B *21/00*

U.S. Cl. 112—103 **10 Claims**



1. An automatic sewing machine comprising:

stitch forming means including a needle capable of endwise reciprocation and lateral jogging in a predetermined direction;

first drive means for controlling the jogging movement of said needle;

a workholder for holding a workpiece during sewing, said workholder being movable along X and Y axes which are right-angled to define a rectangular coordinate plane, each of said X and Y axes intersecting said predetermined direction of the needle jogging;

second drive means for varying the position of said workholder relative to said needle in said coordinate plane, said second drive means including X-axis drive means for moving said workholder along said X axis and Y-axis drive means for moving said workholder along said Y axis;

static memory means for storing first data related to the amount of jogging of said needle and second data related to the position of said workholder; and

control means for extracting said first data and said second data from said static memory means, and for supplying the extracted first and second data respectively to said first and second drive means in timed relation with the reciprocation of said needle.

4,383,490

HOSIERY TOE CLOSING MACHINE

Michael J. Hodges, High Wycombe, England, assignor to Detexomat Machinery Limited, England

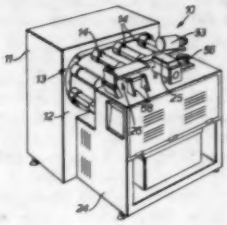
Filed Apr. 6, 1981, Ser. No. 251,481

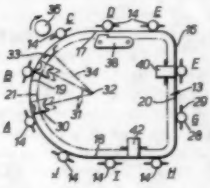
Claims priority, application United Kingdom, Apr. 18, 1980, 8012830; Mar. 12, 1981, 8107889

Int. Cl.³ D05B *21/00*

U.S. Cl. 112—121.15 **13 Claims**

1. An automatic hosiery toe closing machine, having a plurality of hose carriers movable continuously in unison around an endless path, a seamer at a fixed location adjacent the said path, and a toe end receiving station which the carriers in turn pass, mechanism at said station operable (i) to take hold of the toe end of hose mounted on each carrier as the latter is passing the station and (ii) to convey the toe end past said seamer for a toe seam of predetermined shape to be formed therein, said mechanism including a gripper to seize a toe end, a carriage





mounting said gripper and an associated drive means to displace the carriage and gripper avoiding relative motion between the gripper and carrier when said gripper seizes the toe end.

4,383,491

METHOD AND APPARATUS FOR HOSIERY MANUFACTURE

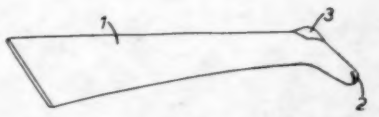
Michael J. Hodges, High Wycombe, England, assignor to Detexomat Machinery Limited, High Wycombe, England

Filed Dec. 31, 1980, Ser. No. 221,840

Claims priority, application United Kingdom, Jan. 7, 1980, 8000402

Int. Cl.³ D05B *23/00*, *97/00*

U.S. Cl. 112—262.2 **12 Claims**



1. A method of automatically closing the toes of hosiery using a seamer, wherein a tubular hose blank having a predefined heel is mounted on a carrier, a toe end portion of the blank mounted on the carrier is caused to adopt a laterally spread flat condition and in this condition is moved past said seamer which generates a toe seam of a predetermined outline across the toe end portion, and wherein a driven member is brought into engagement with the toe end portion after mounting on the carrier and said toe end portion is rotated thereby around the carrier until the said toe end portion and the heel are in a predetermined attitude upon the carrier, the resulting mutual orientation of the toe end portion and heel being preserved in the course of spreading the toe end portion flat and seaming.

6. A machine for automatically closing the toes of hosiery supplied in open-ended tubular form having predefined heels, the machine comprising a seamer, means for moving a flat-

tened hose toe end past the seamer to generate a toe closing seam of predetermined outline therein, a carrier to support the hose on the machine, means movable into and out of engagement with the toe end portion of a hose on the carrier, prior to movement of the toe end past the seamer, and operative to rotate the toe end portion around the carrier and with it the heel, and control means including a sensor located at a set, datum position with respect to the carrier, the control means being operable to effect a discontinuation of rotation of the toe end portion when said sensor has detected arrival of an identifiable feature in said toe end portion in a position of alignment with the sensor.

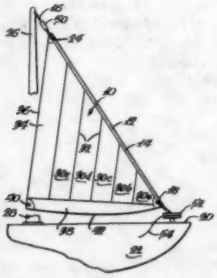
10. A machine for automatically closing the toes of hosiery supplied in open-ended tubular form having predefined heels, the machine comprising a seamer, movable clamp means for gripping a flattened hose toe end and for moving it past the seamer to generate a toe closing seam therein, a carrier to support the hose on the machine and means operable to advance a toe end portion of the hose from the carrier into the clamp means, the machine further including a rotationally-driven member mounted for movement into and out of engagement with the toe end portion supported on the carrier, prior to advance thereof into the clamp means, for rotating the toe end portion when engaged thereby around the carrier and with it the heel, and rotation control means including a sensor located at a set, datum position with respect to the carrier, the said control means being operable to effect a discontinuation of rotation of the toe end portion when the sensor has detected arrival of an identifiable feature in said toe end portion into a position of alignment therewith.

4,383,492

FURLING SAIL WITH PROTECTIVE PANELS

Gerald W. Harris, 27 Green Acre La., Westport, Conn. 06852, and John K. Marshall, Addison, Me. 04606

Filed Jan. 23, 1981, Ser. No. 227,657
Int. Cl.³ B63H *9/04*
U.S. Cl. 114—103 **6 Claims**



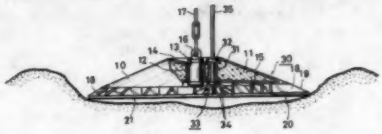
1. A furling sail having a luff, leech and foot, wherein the sail is wrapped around the luff in order to furl the sail, said furling sail comprising a plurality of elongate upright panels running between the luff and the foot of the sail, said upright panels being substantially parallel to the leech and being connected along their adjacent edges to define substantially vertical seams and including an upright panel at the leech, and a substantially horizontal and continuous foot panel extending along the foot of the sail and being connected to said upright panels, the foot panel and the upright panel at the leech each comprising at least one panel of weather protective material that together substantially cover the sail when furled about the luff thereof, whereby to cover and protect the body of the sail and the seams between said upright panels.

4,383,493

ANCHOR

Osamu Takamatsu; Hiyoshi Ooshima; Katsuhiro Kaneko; Hiroyuki Hayashi, and Toyomori Tsuda, all of Osaka, Japan, assignors to Hitachi Shipbuilding & Engineering Co., Osaka, Japan

Filed Sep. 30, 1980, Ser. No. 192,588
Claims priority, application Japan, Oct. 3, 1979, 54-128154; Oct. 3, 1979, 54-128155; Mar. 26, 1980, 55-40823[U]
Int. Cl.³ B63B *21/26*
U.S. Cl. 114—294 **7 Claims**



1. An anchor comprising:

a main body having an approximately frustoconical shape, the height of said shape being smaller than the diameter of the outer periphery thereof, said main body further comprising an opening extending vertically therethrough at the center thereof;

shank means rotatably mounted within said opening;

the bottom outer periphery of said main body having a continuous circular shape; and

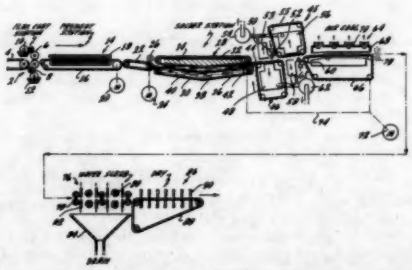
a plurality of vanes, each shaped as a vertically extending plate, arranged spaced apart along the outer periphery of the main body and the tops of the vanes attached to the bottom of the main body, with a horizontally extending annular plate attached to each of said vanes at the bottom edge thereof and spaced below the main body, whereby said arrangement of said vanes and said annular plate function to dig into the bottom and lodge therein in response to a pull exerted on said anchor from any direction.

4,383,494

SOLDER-COATING APPARATUS

Peter Schillke, and Robert R. Walls, both of Santa Barbara, Calif., assignors to Allied Corporation, Morris Township, Morris County, N.J.

Division of Ser. No. 93,215, Nov. 13, 1979, Pat. No. 4,277,518. This application Feb. 19, 1981, Ser. No. 236,006
Int. Cl.³ B05C *3/132, 11/06*
U.S. Cl. 118—50 **15 Claims**



1. A multiple station apparatus for applying a protective coating of solder over the conductive portions of a printed circuit board wherein the conductive portions are present on one or both sides of the board comprising:

a preheat station for receiving the circuit board to be coated;

a soldering station positioned to receive circuit boards from said preheating station for applying the protective coating of solder;

said soldering station including means to contain a bath of molten solder;

means defining a path of travel through said bath of molten solder, which path of travel includes a portion beneath the surface of said bath;

means positioned above said bath of solder to contact the upper surface of a printed circuit board as the latter travels along said path of travel through said bath of molten solder;

said last named means cooperating with said bath of solder to form an infeed nip receiving the circuit board from said preheat station as the latter enters said path of travel such that the path of solder urges the printed circuit board into contact with said means which contact the upper surface of the printed circuit board,

means to move said contact means and circuit board in contact therewith along said path of travel and the portion thereof beneath the surface of said bath as the molten solder exerts an upward force against the circuit board to maintain the latter in contact with said contact means, and

means cooperating with said soldering station to receive a circuit board therefrom to remove excess solder from the circuit board.

4,383,495

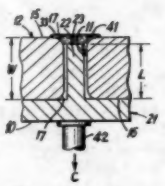
APPARATUS FOR COATING SURFACES OF A SUBSTRATE

George J. Plichta, Woodbridge Township, Middlesex County, and Thomas E. Unger, Chatham, both of N.J., assignors to Western Electric Company, Inc., New York, N.Y.

Continuation of Ser. No. 253,456, Apr. 13, 1981, abandoned, which is a division of Ser. No. 155,246, Jun. 2, 1980, Pat. No. 4,301,192. This application Jun. 21, 1982, Ser. No. 390,579

Int. Cl.³ H05K *3/12, 3/42*

U.S. Cl. 118—406 **7 Claims**



1. Apparatus for coating the walls of a thru hole formed in a substrate with a liquid comprising:

a pin having a cross-sectional area matching that of the hole but slightly undersized with respect thereto;

means for inserting the pin into the hole;

means for arresting the insertion of the pin in a position where a front end of the pin does not protrude from a first surface of the substrate when such arresting means contacts a second surface of the substrate;

means for coating portions of the first surface of the substrate, including the area about the hole and the front end of the pin, with the liquid when the arresting means has positioned the pin within the thru hole; and

means for withdrawing the pin from the hole so that the liquid is drawn by the pin into the hole and coats the walls of the hole with a film of the liquid.

4,383,496

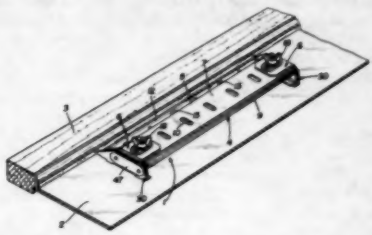
IMPROVED PAINT GUIDE

Allen M. Sbotwell, 207 Simpson Howell Rd., Elizabeth, Allegheny County, Pa. 15037

Filed Mar. 22, 1982, Ser. No. 360,469

Int. Cl.³ B05C *11/00*

U.S. Cl. 118—504 **13 Claims**



1. A paint guide construction including:

(a) a frame having a paint shield terminating in a straight edge;

(b) a pair of spaced arm means movably mounting the frame therebetween for movement of the straight edge between raised and lowered positions, said arm means extending generally transverse with respect to the paint shield edge and terminating in front locating ends;

(c) spring means operatively engageable with the frame and arm means for biasing the paint shield edge toward the raised position wherein the edge is disengaged from a surface to be painted; and

(d) cam means operatively engageable with and extending between the frame and arm means to impart generally straight line movement to the paint shield edge when said edge moves toward and away from a surface being painted when moving between lowered and raised positions, respectively.

4,383,497

DEVELOPING DEVICE

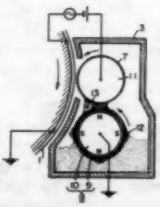
Hatsuo Tajima, Matsudo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 4, 1980, Ser. No. 183,947

Claims priority, application Japan, Sep. 11, 1979, 54-116419

Int. Cl.³ G03G *15/08*

U.S. Cl. 118—651 **11 Claims**



1. A developing device, in which development is effected by opposing a thin layer of one-component non-magnetic toner particles to an electrostatic image holding member surface with a small space gap therebetween, the device comprising:

magnetic means to form thereon a magnetic brush with a magnetic carrier which electrostatically attracts one-component, non-magnetic toner particles;

means for supplying magnetic carrier and one-component toner particles to said magnetic means;

developer conveying means which passes by said magnetic means and contacts the magentic brush such that one-component toner particles are received on said conveying means, and which passes a developing station where said development is effected; and

means for applying a voltage, having AC components, between said magnetic means and said developer conveying means, wherein said voltage is for promoting the movement of toner to said conveying means, without promoting such travel of the carrier.

4,383,498

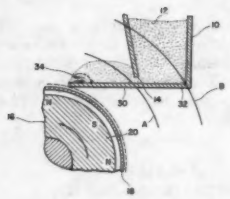
APPARATUS FOR APPLYING MAGNETIC TONER TO A MAGNETIC TRANSPORT ROLL

Keitaro Yamashita, Saitama, Japan, assignor to Hitachi Metals, Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 20,322, Mar. 14, 1979, abandoned. This application Sep. 18, 1980, Ser. No. 188,528

Int. Cl.³ G03G *15/00*

U.S. Cl. 118—657 **10 Claims**



1. In apparatus for supplying magnetic toner to an image-developing zone of a copying machine including a non-magnetic cylindrical shell, a magnet roll rotatable within the shell, the magnet roll including on its surface a plurality of elongated magnets parallel to the axis of the roll and alternating in polarity, and a hopper for holding a supply of lower portion, the improvement comprising:

a non-magnetic member having a plane surface for guiding toner from said discharge port to the vicinity of the surface of the shell, said member being substantially tangential to the surface of the cylindrical shell, said member having an end portion in the vicinity of said shell and said end portion forming a doctor gap with said shell for determining the depth of toner supplied to said shell from said surface, wherein said magnetic toner is supplied to a surface of said non-magnetic member from the toner discharge port of said hopper and the opposite surface to said surface of the non-magnetic member is facing to said non-magnetic cylindrical shell, said non-magnetic member being positioned upstream of the point of tangency relative to the direction of rotation of the magnet roll, and wherein said discharge port is positioned in the vicinity of a circular line which divides an area where magnetic toner particles tend to be attracted to the cylindrical shell by magnetic force and an area where magnetic toner particles tend to self-rotate by rotation of said magnet roll.

4,383,499

CAST METAL HEAT EXCHANGER AND METHOD OF FORMATION

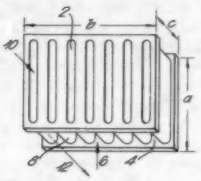
Michael Rackham, Leamington Spa, and William C. Habgood, Cubbington, both of England, assignors to Potterton International Limited, Warwick, England

Division of Ser. No. 41,375, May 22, 1979, abandoned. This application Nov. 12, 1981, Ser. No. 320,498

Claims priority, application United Kingdom, May 26, 1978, 23025/78

Int. Cl.³ F22B *15/00*

U.S. Cl. 122—18 **8 Claims**



1. A cast metal heat exchanger in combination with a hot water boiler having a fuel burner from which hot exhaust gases rise and pass in thermal engagement through the heat exchanger, the heat exchanger comprising:

a plurality of substantiallly cuboid cast metal waterway sections, each of the waterway sections having a cuboid volume not greater than 4,500 mls.;

the waterway sections being interconnected at spaced intervals so as to define unobstructed and substantially cuboid flueways therebetween;

the heat exchanger and the individual waterway sections and flueways being rectangular when viewed in plan, transverse to the direction of movement of the hot rising exhaust gases, the major axes of the viewed rectangles of the individual waterway sections and flueways being disposed parallel to the minor axis of the viewed rectangle of the heat exchanger;

and,

walls of the cast metal waterway sections forming a majority of primary heat exchange surfaces having a thickness not greater than 4 mms., whereby more efficient transmission of thermal energy from the hot gases to water flowing through the heat exchanger can be achieved notwithstanding the small size and volume of the heat exchanger.

4,383,500

DRYING UNIT FOR A STEAM GENERATOR ESPECIALLY IN NUCLEAR REACTORS

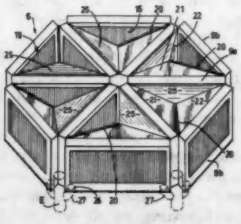
Claude Lavalerie, Taverny, and Christian Borrel, Carriere, both of France, assignors to Framatome, Courbevoie, France

Filed Jun. 10, 1981, Ser. No. 272,443

Claims priority, application France, Jul. 2, 1980, 80 14744

Int. Cl.³ B01D *45/00*; F22B *37/26*

U.S. Cl. 122—491 **6 Claims**



1. Steam drying unit comprising a plurality of vertically

disposed drying elements of parallelepipedic shape, each of said drying elements being provided with steam guidance means for the admission of wet steam into said drying element, and means for collecting the water gathered in said drying element, a number of said peripheral drying elements comprising an annular crown, the remainder of said drying elements being radially disposed at the interior of said crown, with each of said radial elements extending from a corner on said crown toward the center of said crown and forming with two of said radial elements a triangular cell, said guidance means comprising, for each said cell, an inner partition comprising three vertical plates, extending over a portion of each of the bisector plates of said cells and fixed to one another along a contact axis at the center of said cell, so as to define therein three equal compartments, and three transverse plates comprising two lower plates closing the base of two compartments, respectively, and an upper plate closing the top of the third compartment.

4,383,501

COOLING SYSTEM FOR INTERNAL COMBUSTION ENGINE

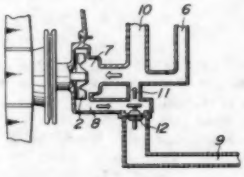
Junichi Yokoyama, Ebina, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Apr. 22, 1981, Ser. No. 256,588

Claims priority, application Japan, May 27, 1980, 55-72103[U]

Int. Cl.³ F01P 7/16

U.S. Cl. 123—41.1 **6 Claims**



1. A cooling system for an internal combustion engine having a cylinder block, a cylinder head, a radiator for cooling water from the cylinder block and the cylinder head, and a pump having an inlet and an outlet comprising:

a bypath in communication with the pump inlet for bypassing the radiator;

a communicating passage directly communicating the pump inlet with the pump outlet;

means for detecting the temperature of the cooling water; and

a valve controlled by the detecting means for opening said communicating passage when the temperature of the cooling water is below a predetermined value, whereby the cooling water does not flow through the cylinder block and cylinder head, and for closing said communicating passage when the temperature of the cooling water is higher than said predetermined value, whereby the cooling water flows from the bypath into the cylinder block and the cylinder head.

4,383,502

WATER-COOLED INTERNAL COMBUSTION ENGINE USING HYDRAULIC-OIL LUBRICATION AND COOLING-WATER PUMP

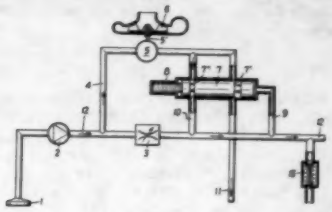
Othmar Skatsche, and Bertram Obermayer, both of Graz, Austria, assignors to Hans List, Graz, Austria

Filed Jan. 26, 1981, Ser. No. 228,220

Claims priority, application Austria, Jan. 24, 1980, 391/80

Int. Cl.³ F01P 5/12

U.S. Cl. 123—41.44 **4 Claims**



1. A water-cooled internal combustion engine including piping defining an hydraulic oil circuit having an oil pump and using hydraulic oil lubrication and a cooling-water pump driven as a function of the operating condition of the internal combustion engine, characterized in that a hydraulic motor is provided in the circuit for the drive of the cooling-water pump which, by means of a control element, can be switched into the hydraulic oil circuit of the internal combustion engine, and a control device operating as a function of the lubricating oil pressure in the piping of the hydraulic oil circuit, is located at the oil outlet side of the hydraulic motor for discharging the oil coming from the hydraulic motor into the oil pan when the lubricating-oil pressure necessary for a dependable lubrication is exceeded, and for introducing the oil ciming from the hydraulic motor into the lubricating oil circuit when the lubricating-oil pressure falls below a prescribed value.

4,383,503

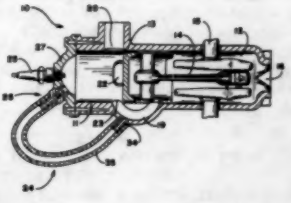
COMBUSTION CHAMBER SCAVENGING SYSTEM

John M. Griffiths, Fond du Lac, Wis., assignor to Brunswick Corporation, Skokie, Ill.

Filed Jun. 12, 1981, Ser. No. 273,129

Int. Cl.³ F02B 33/04

U.S. Cl. 123—73 PP **1 Claim**



1. A two-cycle, crankcase compression engine comprising:

(A) a generally horizontal cylinder;

(B) a piston mounted for reciprocation in said cylinder and defining a variable volume combustion chamber in one end of said cylinder;

(C) a crankcase chamber at the other end of said cylinder having a volume which varies as said piston reciprocates;

(D) a transfer passage means formed in the walls of said cylinder for transferring air-fuel mixture from said crank-

case chamber to said combustion chamber and creating a loop charging flow pattern in said combustion chamber;

(E) a spark plug in said combustion chamber for igniting said air-fuel mixture;

(F) an exhaust port in said combustion chamber for exhausting combustion gases from said combustion chamber; and

(G) a secondary passage connecting a low point in said transfer passage means where liquid fuel may accumulate to said combustion chamber adjacent said spark plug to admit fuel or air-fuel mixture to said combustion chamber directed toward said exhaust port, said secondary passage including a one-way valve to prevent flow from said combustion chamber.

4,383,504

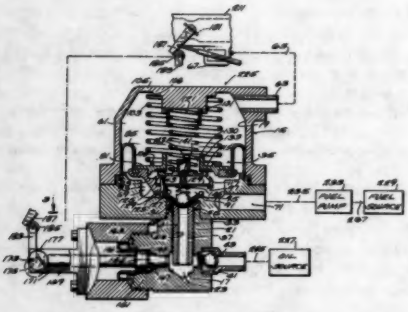
MARINE PROPULSION DEVICE WITH MECHANICAL FUEL PRESSURE OPERATED DEVICE FOR SUPPLYING A FUEL/OIL MIXTURE

Frank J. Walsworth, Waukegan, Ill., assignor to Outboard Marine Corporation, Waukegan, Ill.

Filed Nov. 23, 1981, Ser. No. 324,145

Int. Cl.³ F01M *3/00*

U.S. Cl. 123—73 AD **41 Claims**



1. A marine propulsion device comprising a lower unit including a lower end, and a propeller rotatably mounted in said lower end, a power head comprising an engine including a fuel feeding means, and an output shaft drivingly connected to said propeller, means adapted for mounting said lower unit to the transom of a boat and for vertical tilting movement and horizontal steering movement relative to the boat, means defining a source of oil, means defining a source of fuel, and means, including an outlet connected to said fuel feeding means, a first inlet connected to said oil source, and a second inlet connected to said fuel source, for pumping oil and supplying fuel to said fuel feeding means, said oil pumping and fuel supplying means being operable, in response to consumption of fuel by said fuel feeding means and in response to the presence of a pressure differential between said outlet and said second inlet.

4,383,505

DEVICE FOR PREVENTING CHANGE OF FIXED ANGLE OF DISTRIBUTOR

Masanori Hanaoka, 1119-63, Kamiike-cho 1-chome, Toyota-shi, Aichi-ken; Takakazu Kawabata, 21-144, Akiba-cho 8-chome, Toyota-shi, Aichi-ken, and Tetsuo Kondo, 133-2, Takigawa-cho, Showa-ku, Nagoya-shi, Aichi-ken, all of Japan

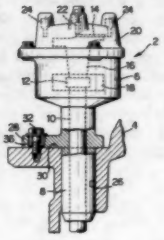
Filed Jun. 2, 1981, Ser. No. 269,597

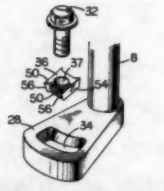
Claims priority, application Japan, Jan. 16, 1981, 56-5807

Int. Cl.³ F02P *7/02*

U.S. Cl. 123—146.5 A **10 Claims**

1. A device for preventing a fixed angle change of a distributor in relation to an engine, which distributor includes a cylindrical portion, through which a rotor shaft is pierced, and a flange formed on the cylindrical portion, the cylindrical portion being rotatably fitted into a fitting hole formed in the engine while the flange being firmly seated on the engine by means of a bolt pierced through an arcuate elongated hole formed in the flange, said device comprising a fixing block of substantially hexahedron shape provided with a circular hole bored therethrough in the direction of thickness thereof with an inner diameter slightly larger than the diameter of said bolt





and at least one thrusting projection of greater hardness than that of said flange on either side surface of said fixing block parallel to the longitudinal direction of said elongated hole, whereby said fixing block is pierced by said bolt through said circular hole for letting said thrusting ribs intrude, as the bolt is fastened, into two mutually opposed walls of said elongated hole so as to consequently prevent said flange from being rotated about the axis of said cylindrical portion.

4,383,506

ENGINE ROTATION SPEED CONTROL SYSTEM

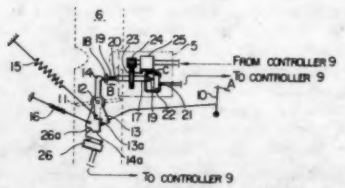
Takeshi Atago, and Toshio Manaka, both of Katsuta, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 22, 1980, Ser. No. 218,672

Claims priority, application Japan, Dec. 28, 1979, 54-170527; Dec. 28, 1979, 54-170528

Int. Cl.³ F02N *17/00*

U.S. Cl. 123—179 G **9 Claims**



1. In an engine rotation speed control system comprising:

an actuator for prescribing the recovery position of a throttle valve;

recovery position sensor means for detecting that the throttle valve is brought into the recovery position;

an idle speed control unit for controlling said actuator such that an idling speed is obtained which is determined by

operational parameters of said engine, when said throttle valve is placed in said recovery position; and

a negative pressure restricting unit for controlling, in preference to the control by means of said idle speed control unit, said actuator such that a reduction in intake negative pressure for said engine to below a preset negative pressure is prevented;

engine stopped sensor means for detecting that said engine is stopped;

initial position setting means for initializing said actuator such that said recovery position takes a predetermined position, when the key switch for engine start is closed during the stopped of said engine; and

start position setting means for setting said recovery position of the throttle valve by said actuator such that the opening degree of the throttle valve is obtained which meets the initial state of said engine, when initialization by said initial position setting means is completed.

4. A method of operating an engine speed control system wherein the position of a throttle valve is adjusted so as to control engine speed upon the starting of the engine, said throttle valve being displaced in a first direction for an increase in engine speed and in a second direction for a decrease in engine speed, comprising the steps of:

(a) establishing the position to which said throttle valve recovers for an at-rest state of said throttle valve;

(b) in response to the application of an engine starting request, causing the recovery position of said throttle valve to be established at a first prescribed position;

(c) in response to said recovery position of said throttle valve being established at said first prescribed position in step (b), adjusting said recovery position to a second position dependent upon an operation parameter of the engine; and

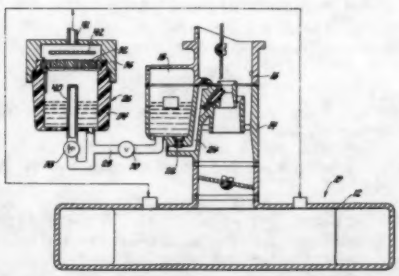
(d) inhibiting the starting of the engine until the completion of step (c), and thereafter permitting said engine to be started in accordance with said starting request.

4,383,507

COLD STARTING SYSTEM FOR ALCOHOL FUELED ENGINE

Thomas M. Powell, Rochester, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Apr. 6, 1981, Ser. No. 251,486
Int. Cl.³ F02M *31/12*
U.S. Cl. 123—179 H **1 Claim**



1. A cold starting system for an engine having a carburetor for mixing liquid alcohol with air to form an air-fuel mixture and having an induction passage for conducting said mixture to the engine, said carburetor including a fuel bowl containing liquid alcohol, said system comprising:

a vaporizer chamber having a connection to said fuel bowl for receiving a quantity of liquid alcohol therefrom and a valve in said connection operable to trap a supply of liquid alcohol in said chamber,

a heating element disposed in said chamber above the liquid alcohol, said element comprising a grid having a plurality of surfaces, said grid being connected in an electric circuit and formed of a positive temperature coefficient thermistor material which limits current through said grid to maintain said grid at a substantially constant temperature effective for evaporating liquid alcohol,

a pump actuable for drawing liquid alcohol from the lower portion of said chamber and for spraying such alcohol upon said grid, whereby liquid alcohol discharged from the lower surface of said grid is redirected to said grid,

means effective prior to starting the engine at engine temperatures below a selected value for operating said valve to trap liquid alcohol in said chamber, for actuating said pump to spray liquid alcohol upon said heating element grid, and for directing current through said circuit to said heating element grid whereby a quantity of alcohol vapor may be provided in said vaporizer chamber,

and a vapor duct for conducting alcohol vapor from said vaporizer chamber to said induction passage, thereby providing sufficient alcohol vapor to start the engine,

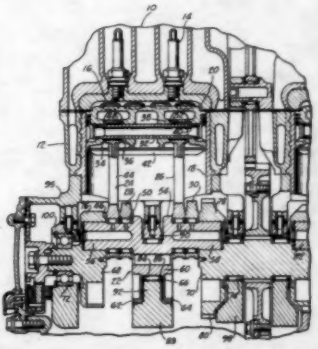
and baffling means above said grid to inhibit passage of liquid alcohol from said vaporizer chamber to said induction passage, whereby liquid alcohol discharged from the upper surface of said grid is redirected to said grid.

4,383,508

INTERNAL COMBUSTION ENGINE

Shoichiro Irimajiri, Kawagoe, and Takeo Fukui, Tokyo, both of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation-in-part of Ser. No. 22,801, Mar. 22, 1979, abandoned. This application Sep. 18, 1980, Ser. No. 188,477
Claims priority, application Japan, Mar. 30, 1978, 53-40106
Int. Cl.³ F02F *3/28*
U.S. Cl. 123—193 P **7 Claims**



1. An internal combustion engine comprising

an oval engine cylinder,

an oval piston mounted to reciprocate in sliding contact with said oval engine cylinder,

a crankshaft extending parallel to the major dimension of said piston,

two connecting rods spaced apart from each other and extending between said piston and said crankshaft,

bearings rotatably supporting said crankshaft relative to said oval engine cylinder, a first one of said bearings being between said two connecting rods, and wrist pin means for connecting said two connecting rods to said piston, wherein said crankshaft includes, fixed together in seriatum and adjacent, a first shaft portion, a first crank pin, a second shaft portion, a second crank pin, and a third shaft portion, said first crank pin receiving one of said connecting rods, said second crank pin receiving the other of said connecting rods

and being angularly aligned with said first crank pin, said second shaft portion receiving said first one of said bearings and said first and third shaft portions receiving respectively a second and third of said bearings.

4,383,509

PISTON FOR INTERNAL COMBUSTION ENGINES

Friedrich Bauer, Mittelhembach, Fed. Rep. of Germany, assignor to M.A.N. Maschinenfabrik Augsburg-Nürnberg Aktiengesellschaft, Nuremberg, Fed. Rep. of Germany

Continuation of Ser. No. 52,909, Jun. 28, 1979, abandoned. This application Nov. 10, 1981, Ser. No. 319,888

Claims priority, application Fed. Rep. of Germany, Jun. 30, 1978, 2828749

Int. Cl.³ F01P 3/10

U.S. Cl. 123—193 P 4 Claims

1. A piston for use in a cylinder of a high-performance internal combustion engine, the piston having a relatively short axial length, the piston comprising in combination:

a top surface;

an outer cylindrical surface juxtaposed with the wall of the cylinder;

a top ring groove in the outer surface of the piston adjacent the top surface of the piston for receiving a top piston ring;

an oil accumulating groove positioned beneath the top ring groove for dispensing oil in front of the top piston ring as the ring moves downwardly, the oil accumulating groove being annular with respect to the longitudinal axis of the piston and having an upwardly inclined upper oil-confining surface and a downwardly inclined lower oil-confining surface, the angle of the top oil-confining surface with respect to an imaginary plane normal to the axis of the piston being purposely different in angle of inclination by approximately 2.5 times the angle of the bottom oil-confining surface with the imaginary plane whereby an intentionally increased amount of oil is dispensed to lubricate the piston ring in the top ring groove;

a portion of the outer cylindrical surface of the cylindrical wall separating the opening of the top ring groove from the opening of the oil-accumulating groove; and

at least one additional ring groove positioned below the oil-accumulating groove for receiving and carrying at least one more piston ring.

4,383,510

SYSTEM FOR REGULATING THE ENGINE SPEED

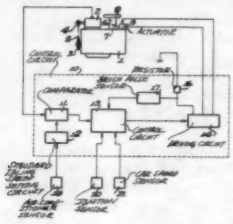
Hiroyuki Nakamura, Higashiyamato; Makoto Shikata, Musashimurayama; Masaaki Ohgami, and Kazuo Hara, both of Musashino, all of Japan, assignors to Fuji Jukogyo Kabushiki Kaisha, Tokyo and Nissan Motor Co., Ltd., Yokohama, both of, Japan

Filed Mar. 5, 1981, Ser. No. 240,691

Claims priority, application Japan, Mar. 7, 1980, 55-29333

Int. Cl.³ F02B 3/00

U.S. Cl. 123—352 8 Claims



1. In a system for regulating the engine speed of an internal combustion engine of the type having a carburetor and a throttle valve in said carburetor, an actuator comprising an electric motor for maintaining said throttle valve in an open state, a speed sensor responsive to the speed of said engine for producing an output, a comparing circuit means for comparing the output of said speed sensor with a reference value and for producing first signals in dependency on the comparison, the improvement comprising

first circuit means for being responsive to the number of the revolutions of said electric motor from a reference point during the operation of the motor for producing an output dependent on said number of revolutions,

control circuit means for contrasting the difference between the output of said speed sensor and a predetermined reference value with the output of said first circuit means and for producing output signals for a time period until the contrasting reaches a predetermined state, and

driving circuit means for driving said electric motor for increasing and decreasing respectively the position of said throttle valve in said open state of said throttle valve in dependency on said output signals of said control circuit means and on said first signals from said comparing circuit means.

4,383,511

CONTROL SYSTEM

Christopher Jones, Alcester, England, assignor to Lucas Industries Limited, Birmingham, England

Filed Feb. 4, 1981, Ser. No. 231,419

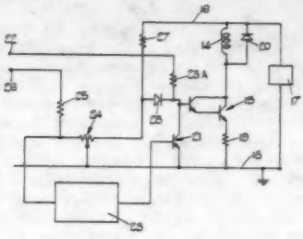
Claims priority, application United Kingdom, Feb. 19, 1980, 8005550

Int. Cl.³ F02D 1/12

U.S. Cl. 123—359 7 Claims

1. A control system for the fuel pump of an internal combustion engine and of the kind comprising an electromagnetic actuator operable to determine the amount of fuel supplied by the pump, a control circuit including an output stage for controlling electric current flow in the actuator and a fuel determining network which controls the output stage, a demand transducer operable by the operator of the engine for supplying a demand signal to the fuel determining network, said output stage including an output transistor, a first resistor through which base current can be supplied to said output transistor to cause conduction thereof, current flow through said first resistor being cut off in the event that a failure or fault occurs in the fuel determining network, an input transistor the conduction of which is controlled by said fuel determining

network, said input transistor acting to control the supply of base current to said output transistor, a potentiometer chain having a tapping connected to the base of said output transistor, said demand transducer forming a component of said



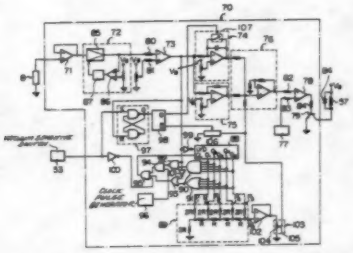
potentiometer chain whereby when a failure of fault occurs in the fuel determining network, base current will be supplied to the output transistor under the direct control of the demand transducer.

4,383,512

AIR-FUEL RATIO CONTROL DEVICE OF AN INTERNAL COMBUSTION ENGINE

Norikatsu Ishikawa, Mishima; Hidemi Onaka, Susono; Haruyuki Obata, Susono; Takao Tate, Susono; Toshio Tanahashi, Susono, and Isamu Hagino, Aichi, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Apr. 29, 1981, Ser. No. 258,573
Claims priority, application Japan, May 14, 1980, 55/62707
Int. Cl.³ F02M *7/24*
U.S. Cl. 123—440 **22 Claims**



1. An air-fuel ratio control device of an internal combustion engine having at least one cylinder, an intake passage and an exhaust passage, said device comprising: a carburetor arranged in the intake passage and having a throttle valve, said carburetor having a fuel reservoir and a fuel overflow passage which interconnects said reservoir to the intake passage;

an air bleed passage interconnecting said fuel outflow passage to the atmosphere for feeding air into said fuel outflow passage;

an air-fuel ratio detector arranged in the exhaust passage and detecting components of an exhaust gas in the exhaust passage for producing a detecting signal which has a potential level which becomes high or low when the air-fuel ratio of said mixture becomes smaller or larger than the stoichiometric air-fuel ratio, respectively;

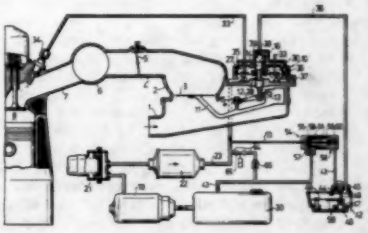
a detecting signal processing circuit having a first comparator for comparing the level of the detecting signal of said air-fuel ratio detector with a reference voltage to produce an output voltage, said processing circuit having an integrating circuit for integrating the output voltage of said first comparator to produce a first control signal; a drive pulse generator in response to said first control signal for generating continuous drive pulses, each having a width which is proportional to the potential level of said first control signal, and; control valve means arranged in said air bleed passage and actuated in response to said drive pulses for increasing the flow area of said air bleed passage in accordance with an increase in the width of said drive pulse, wherein the improvement comprises: a vacuum sensitive switch in response to a vacuum within the intake passage located downstream of said throttle valve for producing a detecting signal when the level of vacuum within the intake passage located downstream of said throttle valve becomes greater than a predetermined level; memory means in response to the detecting signal of said vacuum sensitive switch for storing the mean value of the potential level of the detecting signal which is issued from said air-fuel ratio detector before the level of vacuum within the intake passage located downstream of said throttle valve becomes greater than said predetermined level; converting means for converting said mean value stored in said memory means to a corresponding second control signal; control signal generating means in response to the detecting signal of said air-fuel ratio detector and the detecting signal of said vacuum sensitive switch for producing a third control signal when the potential level of the detecting signal of said air-fuel ratio detector becomes high after the level of vacuum within the intake passage located downstream of said throttle valve becomes smaller than said predetermined level, and; switching means in response to the third control signal of said control signal generating means for temporarily changing a signal, input into said drive pulse generator, from said first control signal to said second control signal to temporarily generate the continuous drive pulses, each having a width which is proportional to the potential level of said second control signal when said control signal generating means produces said third control signal.

4,383,513

FUEL INJECTION SYSTEM

Karl Gmelin, Ingelfingen-Bühlhof, and Klaus-Jürgen Peters, Affalterbach, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed May 27, 1980, Ser. No. 153,654
Claims priority, application Fed. Rep. of Germany, Aug. 16, 1979, 2933052
Int. Cl.³ F02B *33/00*
U.S. Cl. 123—454 **6 Claims**



1. A fuel injection system for mixture-compressing externally ignited internal combustion engines comprising a fuel supply line, at least one fuel metering location disposed in said fuel supply line for metering a quantity of fuel dependent on operating characteristics of the engine an intake manifold, at least one injection valve having an opening pressure for injecting a quantity of fuel into said intake manifold, a pressure regulator valve which holds the fuel pressure upstream of each fuel metering location constant, a fuel tank, means downstream

of said pressure regular valve through which fuel can flow back to said fuel tank, characterized in that by control signal means characterizing engine overrunning the fuel pressure upstream of each said fuel metering location can be reduced in such a manner that the fuel pressure downstream of each said fuel metering location drops below the opening pressure of said injection valves.

4,383,514

ARRANGEMENT FOR FUEL SUPPLY TO THE COMBUSTION CHAMBERS OF A VEHICLE INTERNAL COMBUSTION ENGINE WITH ENGINE BRAKING DISCONNECTION

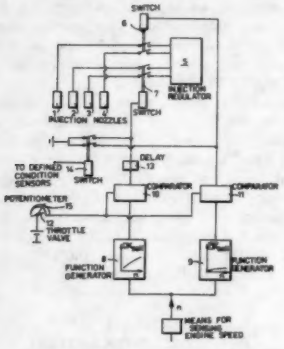
Ernst Fiala, Wolfsburg, Fed. Rep. of Germany, assignor to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Fed. Rep. of Germany

Filed Sep. 26, 1980, Ser. No. 191,126

Claims priority, application Fed. Rep. of Germany, Oct. 19, 1979, 2942319

Int. Cl.³ F02D *13/06;* **F02B** *75/12;* **F02D** *17/00, 5/00*

U.S. Cl. 123—481 **5 Claims**



1. In a fuel supply arrangement in an internal combustion engine of a vehicle containing a plurality of combustion chambers with means for the elimination of the fuel supply to all combustion chambers during an engine braking mode and means for the elimination of the fuel supply to less than all combustion chambers during the operation of the engine at a reduced output, the improvement wherein the fuel supply arangement operates to prevent starting jerks when said engine is in transition from said engine braking mode to a power output mode and includes:

(a) means for sensing the rotational speed of the engine;

(b) means for generating at least a first and a second limit value signal as a function of the rotational speed of the engine which limit value signals define at least one intermediate range of engine operation in said power output mode in which the power output of said engine exceeds zero, said first limit value signal defining a boundary between said engine braking mode and said power output mode, and said second limit value signal defining a boundary between a mode in which less than all combustion chambers are supplied with fuel and a mode in which a still greater number of combustion chambers are supplied with fuel, said means for generating limit value signals being connected with said means for sensing the rotational speed of the engine;

(c) means for providing a load signal indicative of engine load;

(d) comparison means for comparing said limit value signals with said load signal;

(e) said comparison means having at least a first and second output connection,

(1) said first output connection being in controlling relation with said means for elimination of the fuel supply to less than all said combustion chambers, and

(2) said second output connection being in controlling relation to said means for eliminating fuel supply to the remainder of said combustion chambers, said means for eliminating the fuel supply to the remainder of said combustion chambers comprising said means for eliminating the fuel supply to all combustion chambers;

(f) each of said means for elimination and the comparison means being connected such that when said load signal is lower than all of said limit values generated by said means for generating at least two limit values, said engine braking mode is defined and said fuel supply to all combustion chambers is eliminated, and said fuel supply to only some of said combustion chambers is always first restored whenever said load signal is increased to greater than said first limit value signal defining said boundary between said engine braking mode and said power output mode, whereby sudden increased load from engine braking to an acceleration zone requiring all cylinders causes stepwise introduction of some and then all cylinders.

4,383,515

ELECTRONIC FUEL INJECTION CONTROL SYSTEM FOR AN INTERNAL COMBUSTION ENGINE

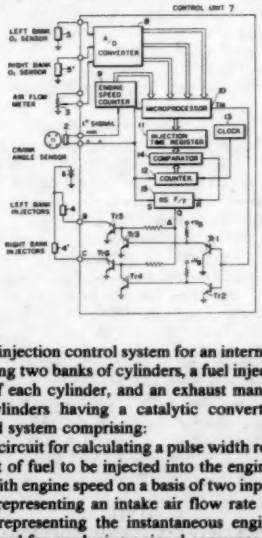
Kazuhiro Higashiyama, Atsugi; Katsumi Hosoya, Yokohama; Shyunichi Kadowaki, and Tsuneomi Yano, both of Tokyo, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Mar. 16, 1981, Ser. No. 244,227

Claims priority, application Japan, Mar. 18, 1980, 55-34392

Int. Cl.³ F01N *3/15;* **F02M** *51/00;* **F02D** *5/00*

U.S. Cl. 123—489 **23 Claims**



1. A fuel injection control system for an internal combustion engine having two banks of cylinders, a fuel injector located at an intake of each cylinder, and an exhaust manifold for each bank of cylinders having a catalytic converter positioned therein, said system comprising:

(a) a first circuit for calculating a pulse width representing an amount of fuel to be injected into the engine in synchronism with engine speed on a basis of two input signals, one signal representing an intake air flow rate and the other signal representing the instantaneous engine revolution speed, and for producing a signal corresponding to one of tri-state logic signals depending upon whether the intake air flow rate exceeds a predetermined value to thereby enable the fuel injectors of both banks of engine cylinders to be simultaneously actuated or for the fuel injectors of either bank of cylinders to be alternatingly actuated;

(b) a second circuit for converting the calculated result from said first circuit into an actual pulse of a corresponding width;

(c) a driving circuit for operating the fuel injectors of both banks of cylinders simultaneously or for operating the fuel

injectors of each bank of cylinders alternatingly during an interval of time corresponding to the pulse width of the pulse signal from said second circuit depending on the state of said tristate logic signals from said first circuit; and

(d) a third circuit for actuating said driving circuit according to the level of the tri-state logic signal fed from said first circuit.

4,383,516

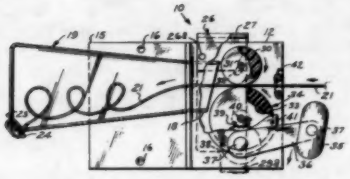
BOW FISHING REEL

Jack La See, 308 W. Cedar St., Abbotsford, Wis. 54405

Filed Apr. 10, 1981, Ser. No. 252,928

Int. Cl.³ F41B 5/00

U.S. Cl. 124—88 **4 Claims**



1. A fishing reel for an archer's bow, comprising:

a pair of parallel spaced-apart plates;

a mounting plate secured to one of said pair of plates for securing said reel to an archer's bow;

a bottle secured to said pair of plates for removably receiving a line which is removably secured to a forward portion of an arrow;

a pair of rollers mounted between said pairs of plates for providing a means of releasing a line for following the flight of an arrow and providing a means of retrieving a line with the attached arrow;

one of said pair of rollers being driven,.gearing connecting said one roller to a hand crank secured to one of said pair of plates;

the other of said pair of rollers being mounted on a finger operated trigger lever secured pivotably to said pair of plates, for releasing said other of said rollers from a line for freedom of travel of a line and its attached arrow, said trigger lever also serving as a means of pinching a line to said roller driven to said gearing;

one of said pair of plates being fixedly secured at one longitudinally side edge to one longitudinal side edge of said mounting plate, and said mounting plate includes a pair of spaced-apart openings, which removably received screw fasteners, for securing said reel to the center side portion of an archer's bow;

the second of said pair of plates having a gear box housing fixedly secured to its outer face for receiving said gearing; and

the neck of said bottle being fixedly secured between said pair of plates, and the closed end of said bottle including a pair of spaced-apart openings, through which one end of a line may be received and knotted.

4,383,517

COMBINATION COAL AND WOOD STOVE

Gordon A. Gillis, 400 E. Water St., Rockland, Mass. 02370, and Richard Lucier, 610 N. Cary St., Brockton, Mass. 02402

Filed May 14, 1981, Ser. No. 263,590

The portion of the term of this patent subsequent to Apr. 28, 1998, has been disclaimed.

Int. Cl.³ F24C 1/14

U.S. Cl. 126—61 **18 Claims**

1. A stove for burning combustible materials and comprising:

means defining a fire chamber including support means therefor and means forming at least a front opening and a side opening,

side door means adapted to open for feeding wood or the like to the fire chamber or closed to substantially seal said side opening and including means supporting the side door from said fire chamber means adjacent said side opening,

said front door means and associated support means therefor permitting said front door means to move relative to said fire chamber means to cover and uncover said front opening,

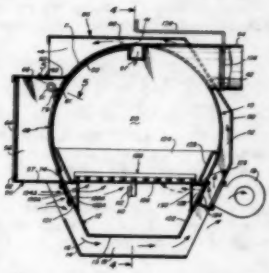
means for controlling the position of said front door means to be open in one position permitting viewing through said front opening and closed in another position substantially sealing said front opening,

said fire chamber being at least partially cylindrical,

said front door means comprising an arcuate door and guide means for the door to permit the door to move relative to the fire chamber front opening to open and close the opening,

said fire chamber also having at least primary tapered lower walls and a substantially flat bottom wall interconnecting the tapered walls,

a basket means for the combustible material supported in



said fire chamber over said tapered walls to be supported in a fixed position demarcating the fire chamber into upper and lower sections,

said basket means having an open bottom,

a grate in said basket means over the open bottom,

handle means connected at one end to said grate adapted for manual movement of the grate,

said bottom wall and associated tapered walls of the fire chamber forming an ash pit including an access door thereto,

blower means,

a first passage means extending about the exterior surface of the fire chamber with said blower means coupled therewith for circulating air about the fire chamber,

and a second air passage means coupled from said first air passage means for coupling air directly into the fire chamber just under the basket means and grate,

said second air passage means including a slide member that is manually adjustable to vary the volume of air coupled via the second air passage means into the lower section of the fire chamber,

said second air passage means including aperture means extending side to side in said fire chamber substantially the length of the grate.

4,383,518

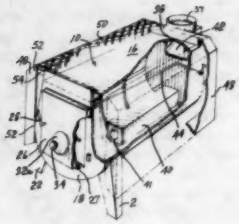
HEATING STOVE

Gabriel Beausoleil, 5060 Ch. du Lac, St. Gabriel de Brandon, Canada (J0K 2N0)

Continuation-in-part of Ser. No. 31,193, Apr. 18, 1979, abandoned. This application Dec. 15, 1980, Ser. No. 216,441

Int. Cl.³ F24B 5/00

U.S. Cl. 126—79 3 Claims



1. A heating stove comprising:

(a) a stove body having top, bottom, front and rear walls and adapted to receive solid fuel, such as wood, on the bottom wall to form a fire bed, said front wall having a fuel loading opening and a door to close said opening;

(b) an adjustable air intake for admitting air into the stove body located in said door adjacent and above said bottom wall;

(c) an upright exhaust duct having a top opening for connection with a stove pipe and located exteriorly of said rear wall;

(d) a smoke outlet located at said rear wall, adjacent the top of the stove body and communicating with the exhaust duct, said smoke outlet having a free cross-sectional substantially equal to that of said top opening;

(e) a smoke flue in the form of a substantially horizontal tube extending within the stove body from said rear wall towards said front wall, located adjacent and above the bottom wall of the stove body and also communicating with the bottom of said exhaust duct, said smoke flue having an inlet located adjacent and above the bottom wall in the front half portion of the distance between said front and rear walls, and intermediate said front and rear walls, said inlet facing said front wall and freely opening within said stove body, said inlet having a free cross-sectional area between four and eight times smaller than the cross-sectional area of said top opening and of said smoke outlet; and

(f) damper means permitting exhaust of the combustion gases through the smoke outlet during starting of the fire, and through the fire bed and the smoke flue when the fire is well lit to ensure maximum fuel and gas combustion.

4,383,519

DOOR FRAME AND HANDLE COMBINATION

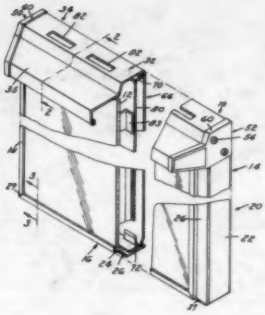
Joseph W. Katona, Walled Lake, Mich., assignor to Mills Products, Inc., Farmington, Mich.

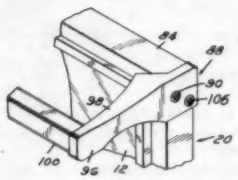
Filed Jun. 10, 1981, Ser. No. 272,109

Int. Cl.³ F24C 15/04; A47B 95/02; A47H 1/14

U.S. Cl. 126—190 14 Claims

1. In an oven door construction, a glass pane, bottom and side frame members extending along and supporting the bottom and sides of said glass pane, and a top frame and handle combination comprising a top frame member extending between the upper edges of said side frame members across the upper edge of said glass pane, end caps secured to said respective side frame members adjacent the upper edges thereof covering said upper edges and also covering the ends of said top frame member, said end caps having extensions projecting forwardly from said frame members, and a handle member extending between and supported by said end cap extensions, said handle member being an integral forward extension of said top frame member, said end caps, including the forward extensions thereof, being in the form of plates secured in surface-to-surface relation to said side frame members in substantially





abutting relation to the ends of said top frame member and forward extension thereof, said plates having flanges extending over the ends of said top frame member and forward extension thereof.

4,383,520

APPARATUS FOR THE INDEPENDENT ROTATION OF AN AGGREGATE ABOUT TWO AXES WHICH ARE POSITIONED PERPENDICULARLY TO ONE ANOTHER

Julius Huebl, Munich, and Johann Eichinger, Vaterstettan, both of Fed. Rep. of Germany, assignors to Carl Hurth Maschinen- und Zahnradfabrik, Munich, Fed. Rep. of Germany

Filed Oct. 29, 1980, Ser. No. 201,843

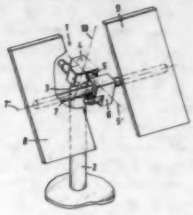
Claims priority, application Fed. Rep. of Germany, Oct. 31, 1979, 2943944

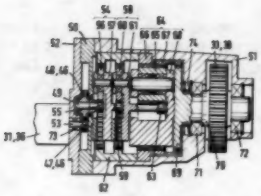
Int. Cl.³ F24J 3/02; F16H 47/00

U.S. Cl. 126—424 10 Claims

1. An apparatus for the rotation of an aggregate independently about two mutually perpendicular axes, in particular for tracking of solar collectors, wherein the improvement comprises: a stationary first drive mechanism having a housing, an electric motor, a multi-stage planetary gear set, a spur-gear stage and a driven shaft; a rotatable second drive mechanism having a housing carried at the free end of said driven shaft of said first drive mechanism, said second drive mechanism further having an electric motor, a multi-stage planetary gear set, a spur-gear stage and a driven shaft, said driven shaft of said second drive mechanism being directed perpendicular to the driven shaft of the first drive mechanism and carrying at its

ends the aggregates to be rotated, the last stage of a said planetary gear set being a self-locking Wolfrom gearing, which





automatically blocks transmission of motion from output side to input side therethrough.

4,383,521

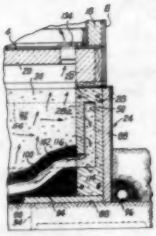
FOUNDATION-BASED SOLAR HEATING SYSTEM

Edward G. Bounds, 1209 Frederick Ave., Salisbury, Md. 21801

Filed Nov. 30, 1981, Ser. No. 325,839

Int. Cl.³ F24J *3/02*; E02D *27/00*

U.S. Cl. 126—430 **9 Claims**



1. A foundation-based solar heating system for use with conventional buildings, comprising in combination:

a foundation erected upon the earth and defining an enclosed perimeter, said foundation including:

a plurality of horizontally extending preformed concrete beams connected to each other to form said enclosed perimeter, each of said beams having top, bottom, and inner and outer side surfaces; and

means engaged with the bottom surfaces of said preformed concrete beams for supporting said beams upon the earth, whereby the top surfaces thereof are elevated above the surface of the earth enclosed by said enclosed perimeter and are adapted to receive and support a building:

said horizontally extending beams being arranged so that one thereof is south-facing and the beam opposite said south-facing beam is north-facing, and said beams having horizontally extending internal air flow channels extending from said south-facing beam around the perimeter of said foundation to said north-facing beam;

a building of conventional construction erected upon said top surfaces of said preformed concrete beams, and including a floor that is spaced above the surface of the earth enclosed by said beams;

the floor of said building, the inner side surfaces of said horizontally extending preformed beams forming said enclosed perimeter, and the surface of the earth enclosed by said perimeter defining an enclosed plenum chamber for containing heated air;

solar collector means mounted upon said south-facing preformed concrete beam, and designed and arranged to heat air flowing therethrough;

port means connecting said solar collector means with said horizontally extending internal air flow channels, whereby air heated by said solar collector means can flow into said air flow channels and will be effective to heat the inner side surfaces of said preformed concrete perimeter beams;

return duct means disposed to extend across said plenum chamber from said north-facing beam to said south-facing beam, and connected between the internal air flow channel of said north-facing beam and said solar collector means, said return duct means being effective for returning air from said north-facing beam to said collector means, and the wall of said duct means functioning to transfer heat from heated air flowing therethrough to air contained within said enclosed plenum chamber; and

blower means connected with said internal air flow channels, and adapted to assure the movement of air through said channels, said duct means and said solar collector means;

whereby air contained within said enclosed plenum chamber is heated by radiation from said inner side walls of said preformed concrete perimeter beams and the wall of said duct means, and is available to heat said building erected upon said beams.

4,383,522

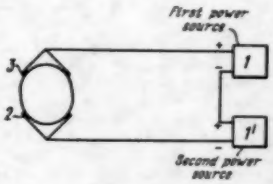
METHOD OF ELECTROANESTHESIA

Eduard M. Kastrubin, Frunzenskaya naberezhnaya, 36, kv. 105, and Jury V. Kordjukov, Nogatinskaya ulitsa, 13, korpus 1, kv. 43, both of Moscow, U.S.S.R.

Filed Nov. 12, 1980, Ser. No. 205,981

Int. Cl.³ A61N *1/34*

U.S. Cl. 128—1 C **4 Claims**



1. A method of electroanesthesia of a patient, comprising conducting preliminary preoperative medicamentous preparation, conducing induction anesthesia, administering muscle relaxants, conducting intubation followed by forced pulmonary ventilation, and applying D.C. pulses involving an additional constant component with the help of electrodes placed in the region of the forehead and neck of the patient, said D.C. pulses being stabilized voltage pulses having the same amplitude and a difference between the repetition rates within a range of from about 100 Hz to about 200 Hz, the electrodes including cathodes applied within the region of the forehead, and anodes applied within the region of the neck, wherein, prior to conducting induction anesthesia, the patient is given a treatment with constant pulse ratio pulses applied for a period of about 20 minutes at a repetition frequency within a range of 800 Hz to 1000 Hz in combination with an additional constant

component of from 0.1 mA to 0.2 mA, while increasing the average current intensity of the stabilized voltage in the patient circuit up to a range of about 0.4 mA to 1.2 mA.

4,383,523

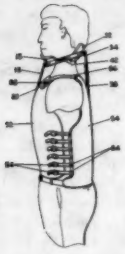
CERVICAL BRACE

John R. Schurman, 7326 Cascade Woods Dr., SE., Grand Rapids, Mich. 49506

Filed Jun. 13, 1980, Ser. No. 159,047

Int. Cl.³ A61H 1/02

U.S. Cl. 128—75 **12 Claims**



1. A cervical brace for supporting the cervical portions of a patient's spine comprising:

chin support means for engaging and supporting the patient's chin so as to prevent downward or sideward movement of the chin and head, the position of the chin support means being vertically and horizontally adjustable and pivotally adjustable in a forward and backward direction, the chin support means comprising:

a chin rest shaped to engage the underside of a patient's chin so as to constrain downward and sideward movement of the chin; and

a front support mechanism positioned adjacent the chest of the patient and extending upwardly to the chin rest, the chin rest being mounted on the front support mechanism for pivotally adjustable movement in a forward and backward direction with respect to the front support mechanism, the front support mechanism being upwardly and downwardly adjustable to raise and lower the chin rest;

occipital support means for engaging and supporting the occipital portion of the patient's head so as to prevent backward or sidewards movement of the head, the position of the occipital support means being adjustable in a direction toward and away from the chin support means and being adjustable in a vertical direction with respect to the patient, the position of the occipital support means also being pivotally adjustable in a forward and backward direction independent of the pivoted position of the chin support means, the independent adjustment features of the chin and occipital support means permitting free and separate adjustment of the chin and occipital support means to fit the brace properly and snugly to the head of each individual patient, the chin and occipital support means then being lockable in their adjusted positions to hold the patient's head rigidly yet comfortably in place, the occipital support means comprising:

an occipital rest shaped to engage the occipital portion of the patient's head so as to constrain backward and sidewards movement of the head; and

a rear support mechanism positioned adjacent the back of the patient and extending upwardly from a lower end, which comprises a pelvic support that rests on the pelvis of the patient, to an upper end, which supports the occipital rest, the occipital rest being mounted on the rear support mechanism for pivotally adjustable movement in a forward and backward direction with respect to the rear support mechanism, the rear support mechanism supporting the occipital rest from the pelvis and being upwardly and downwardly adjustable to raise and lower the occipital rest;

rigid lateral support members interconnecting the chin and occipital support means on each side of the patient's head, the length of each support member being selectively adjustable to move the chin and occipital support means toward or away from each other to fit the patient, the lateral support members being lockable at a desired length to rigidly maintain the desired separation between the chin and occipital support means; and

torso attachment means for holding the front and rear support mechanisms in fixed positions on the torso of the patient.

4,383,524

METHOD AND APPARATUS FOR AIDING IN CERVICAL SPINE RADIOGRAPHIC PRODUCTION

Donald C. Boger, 2727 E. Glenoaks, Glendale, Calif. 91206

Filed Aug. 4, 1980, Ser. No. 175,334

Int. Cl.³ A61H 1/02

U.S. Cl. 128—75 **9 Claims**

1. A body tensioning device for depressing the human shoulder to facilitate the taking of radiographs of the cervical region of a patient comprising elongated strap means including end regions and adjustable length intermediate region;

said end regions comprise a pair of strap portions for each shoulder of adjustable length dimensioned to encircle the shoulders of a patient and join the said intermediate region in the underarm area along the sides of the patient;

said end regions and intermediate region being adjustable in length to depress the patient's shoulders upon the extension of the patient's feet.

4,383,525

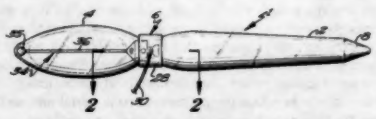
IMPLANTABLE PENILE PROSTHETIC CYLINDER WITH INCLUSIVE FLUID RESERVOIR

F. Brantley Scott, Houston, Tex., and John H. Burton, Minnetonka, Minn., assignors to American Medical Systems, Inc., St. Louis Park, Minn.

Continuation-in-part of Ser. No. 108,124, Dec. 28, 1979, Pat. No. 4,267,829. This application May 15, 1981, Ser. No. 264,202

Int. Cl.³ A61F 5/00

U.S. Cl. 128—79 **12 Claims**



1. An implantable penile prosthesis comprising:

at least one elongated cylinder adapted to be implanted within a patient's penis, said cylinder having a flexible and collapsible distal end section for implantation within the pendulous penis which is constructed to rigidize upon

being filled with pressurizing fluid, and a proximal, rear end section adapted to be implanted within the root end of the penis;

a fluid reservoir chamber formed within said proximal, rear end section of said cylinder;

valve means contained within said cylinder for controlling the flow of fluid back and forth between said fluid reservoir chamber and said flexible distal end of said cylinder; and

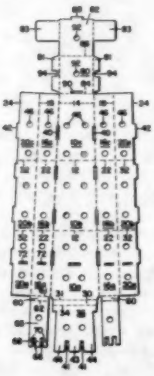
the walls of said proximal, rear end section of said cylinder forming said fluid reservoir chamber being resiliently compressible inwardly and defining an elongated, generally cylindrical chamber of sufficient length to extend into the patient's perineum where it is located upon implantation of said cylinder within the penis whereby said fluid reservoir chamber also serves as a pump means, with the application of external, manual pressure by the patient to said fluid reservoir chamber through the skin in the perineal region serving to force fluid under pressure from said reservoir chamber through said valve means and into said flexible distal end section of said cylinder for rigidizing thereof.

4,383,526

DISPOSABLE TRACTION SPLINT

Seymour Robins, 50 E. Sheffield Rd., Sheffield, Mass. 01257

Filed May 6, 1981, Ser. No. 260,894
Int. Cl.³ A61F 5/04
U.S. Cl. 128—87 R 4 Claims



1. A temporary splint for stabilizing and holding traction on a person's injured leg comprising:

a first part having a first base panel with integrally-formed laterally-opposite first side panels at the sides of the first panel and adapted for foldable articulation along the side edges of the first base panel and with an integrally-formed first end panel at one end of the first base panel and adapted for foldable articulation along the one end of the first base panel,

the first base and side and end panels of the first part having interengageable locking formations for defining a generally channel-like leg-accommodating configuration,

a second part having a second base panel with integrally-formed laterally-opposite second side panels at the sides of the second base panel and adapted for foldable articulation along the side edges of the second base panel and with an integrally-formed second end panel at one end of the second base panel and adapted for foldable articulation along the one end of the second base panel,

the second base and side and end panels of the second part having interengageable locking formations for defining a generally channel-like leg-accommodating configuration,

the first and second parts being nestable in a predetermined telescoping relationship with the first and second end panels disposed at the longitudinally opposite ends of the assemblage and being selectively positioned as to each other for the accommodation of a leg of a particular length,

a plurality of tie means,

a plurality of spaced transversely-disposed sets of apertures in the telescoped first and second parts for the sinuous entrainment through each set of a tie means in the preclusion of movements of the first and second parts relative to each other and of the accommodated leg relative to the splint, and

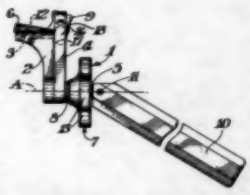
windlass means interengageable with the second end panel of the second part for the twisting of one of the tie means tied to the leg in the application of a desired traction thereupon.

4,383,527

DEVICE FOR GUIDING THE INSERTION OF SURGICAL WIRES INTO BONE TISSUE

Stanley E. Asnis, Port Washington, N.Y., and Rocco R. Borzone, Emerson, N.J., assignors to Howmedica, Inc., New York, N.Y.

Filed Feb. 20, 1981, Ser. No. 236,089
Int. Cl.³ A61F 5/04
U.S. Cl. 128—92 EB 5 Claims



1. A tool for use in inserting a second surgical wire into the bone of a patient at a different position from that of a first surgical wire previously inserted therein, said tool comprising a first arm adapted to receive and rotate about the axis of the first wire, a second arm rotatable with respect to said first arm about an axis of rotation parallel to the first wire, and means connected to the second arm for receiving and directing the placement of the second wire,

with the connection of said receiving and directing means to the second arm being such that the second wire can be universally angulated with respect to the second arm about a center of rotation, and with the distance between said center of rotation and said axis of rotation being about the same as the distance between said first wire and said axis of rotation.

4,383,528

OXYGEN CADDY

Salvatore Eppolito, 77 Wert Ave., Trenton, N.J. 08610

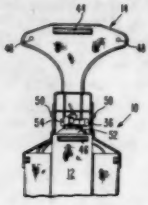
Filed Apr. 20, 1981, Ser. No. 255,565
Int. Cl.³ A61M 16/00
U.S. Cl. 128—205.22 8 Claims

1. An oxygen caddy which comprises:

(a) a rigid supporting frame adapted to hold and completely surround an oxygen tank together with its regulator and valve;

(b) a fabric case which surrounds said rigid supporting frame, said case including at least two pockets in which oxygen delivery means may be stored, and an opening

extending through said case into each of said pockets, whereby a hose connecting an oxygen delivery means



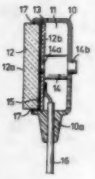
may extend through said case and into each of said pockets.

4,383,529

IONTOPHORETIC ELECTRODE DEVICE, METHOD AND GEL INSERT

Henry L. Webster, Providence, Utah, assignor to Wescor, Inc., Logan, Utah

Filed Nov. 3, 1980, Ser. No. 202,889
Int. Cl.³ A61N *1/30*
U.S. Cl. 604/20 **16 Claims**



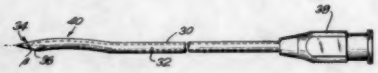
1. An iontophoretic electrode device, comprising an electrode adapted for electrical connection to a voltage source; and a preformed, shape and fluid retaining, semisolid body of a hydrophilic, hydrated gel throughout which is diffused an ionic drug for administration to a patient through intact skin by iontophoresis, said body being secured to the electrode in good electrical contact therewith and having a free and unconfined, solid gel contact face so disposed as to make good electrical contact with the skin of a patent when the electrode device is applied to the patient.

4,383,530

HYPODERMIC NEEDLE AND METHOD OF MAKING NEEDLES

John Bruno, 77-83 Second Ave., Paterson, N.J. 07524

Filed Jun. 5, 1981, Ser. No. 270,871
Int. Cl.³ A61M *5/00*
U.S. Cl. 604—274 **11 Claims**



1. An improved needle structure for use with hypodermic needle assemblies and the like, having a generally hollow tubular needle which is beveled at one end to provide a generally truncated cylindrical leading tip segment with a relatively sharp point at its tip and which has a relatively straight portion with a straight axis therethrough, wherein the improvement comprises:

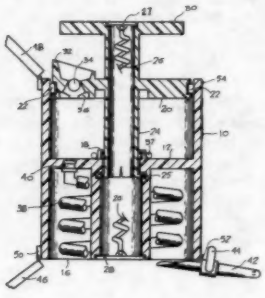
a generally arcuate portion behind said leading tip, said arcuate portion having a generally arcuate axis which diverges from the straight axis of the needle but curves back in a direction towards the straight axis in a generally bulge-like configuration to incline said leading tip segment at a relatively small angle relative to the straight axis of the needle to shield, at least partially, its hollow interior for reducing the amount of tissue that would otherwise enter the hollow needle interior while said needle is penetrating such tissue, such that tissue trauma associated with penetration into the tissue is substantially reduced.

4,383,531

COMPACT HYGIENIC SYRINGE APPARATUS

Panagiotis Panagiotopulos, 25279 Ironwood Ct., Hayward, Calif. 94545

Filed Jan. 15, 1982, Ser. No. 339,768
Int. Cl.³ A61M *1/00*
U.S. Cl. 604—114 **13 Claims**



1. A hygienic syringe apparatus comprising:

a canister having a floor positioned approximately midway between the exterior ends of said canister and sealed against the interior of said canister into first and second cylinders;

a movable piston positioned in said first cylinder and in a plane normal to the longitudinal axis of said canister, said piston extending substantially over the internal cross-sectional area of said first cylinder and separated from the walls of said first cylinder by resilient fluid sealing means;

compressing means attached to said canister and to said piston for urging said piston toward said canister floor;

manually operable means on said piston for raising said piston from said floor and for latching said piston in a fixed raised position in said first cylinder;

a fluid opening in said piston for admitting fluid into said first cylinder; and

a fluid dispensing tubing located in said second cylinder, one end of said tubing connected to an opening in said conduit floor into said first cylinder.

4,383,532

EPIDURAL LEAD ADVANCER

Eugene A. Dickhudt, New Brighton, Minn., assignor to Medtronic, Inc., Minneapolis, Minn.

Filed Oct. 14, 1980, Ser. No. 196,636
Int. Cl.³ A61N *1/04*
U.S. Cl. 128—419 P **12 Claims**

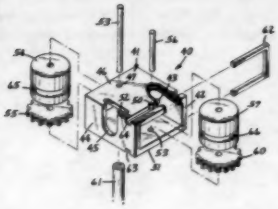
1. Apparatus for advancing or withdrawing an epidural electrode comprising, in combination:

a frame having opposite inlet and outlet apertures for enabling axial passage of the electrode therethrough along a first axis of the frame;

a pair of rollers mounted for rotation in said frame about further parallel axes orthogonal to said first axis, said

rollers being configured and positioned to laterally engage the electrodes therebetween;

disconnectable braking means for opposing the rotation of said rollers; while an electrode is being advanced and for



allowing said rollers to rotate freely while the frame is being removed from an electrode; and

actuation means extending beyond said frame for causing rotation of at least one of said rollers.

4,383,533

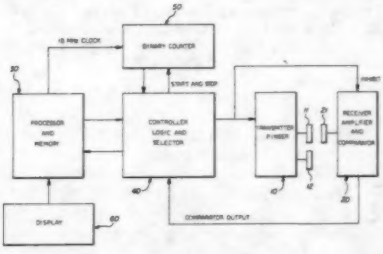
APPARATUS FOR DETERMINING CHANGES IN LIMB VOLUME

Alan M. Lovelace, Administrator of the National Aeronautics and Space Administration, with respect to an invention of; Pramode K. Bhagat, and Vic C. Wu, both of Lexington, Ky., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Feb. 10, 1981, Ser. No. 233,270

Int. Cl.³ A61B *5/00*

U.S. Cl. 128—660 **10 Claims**



1. Measuring apparatus for determining changes in the volume of limbs or other body extremities by determining the cross-sectional area of such limbs comprising:

transmitting means including first and second transducers for positioning on the surface of said limb at a predetermined distance therebetween;

receiver means including a receiver crystal for positioning on the surface of said limb, the distance between said receiver crystal and said first and second transducers being represented by respective first and second chords of a cross-section of said limb, said predetermined distance between said first and second transducers being represented by a third chord of said limb cross-section;

means for generating acoustic pulses from said first and second transducers along said first and second chords to derive from said receiver means first and second signals related to the travel time of said acoustic pulses along said first and second chords respectively; and

computer means connected to said receiver means for computing the area of said limb cross-section utilizing said first and second signals.

4,383,534

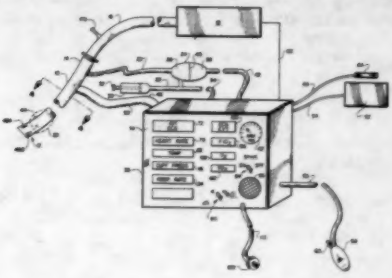
VITAL SIGNS MONITORING APPARATUS

Jeffrey L. Peters, 2735 Sherwood Dr., Salt Lake City, Utah 84108

Filed Jun. 5, 1980, Ser. No. 156,648

Int. Cl.³ A61B *5/00*

U.S. Cl. 128—671 **20 Claims**



1. Tracheal life signs monitoring apparatus comprising:

an endotracheal tube for positioning in the trachea of a patient, said tube having a proximal end and a distal end;

inflatable structure mechanically coupled to said tube proximate said proximal end to detect the heartbeat sounds and breath sounds of a patient, said inflatable structure being adapted to inflate to form a seal between said trachea and said tube;

transmission means which is a channel formed in said tube for communicating an inflating substance to and from said inflatable structure and to transmit said heart and breath sounds through said substance; and

transmitting means removably connected to the transmission means proximate the distal end of said tube to receive said heart and breath sounds and transmit them for audible monitoring by the user.

4,383,535

METHOD FOR PREVENTING REMANENCE PHENOMENA FROM INTERFERING WITH MAGNETIC FIELD SENSING SYSTEMS AND A DEVICE FOR IMPLEMENTATION OF THE METHOD

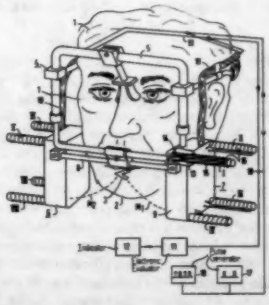
Wolfgang Schorr, Heppenheim, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Oct. 16, 1980, Ser. No. 197,645

Claims priority, application Fed. Rep. of Germany, Nov. 3, 1979, 2944490

Int. Cl.³ A61B *5/10*

U.S. Cl. 128—777 **7 Claims**



1. Method for preventing disruptive remanence phenomena

in reception systems in which a plurality flux pickups with ferromagnetic properties are provided for the detection of a field flux and of a change of field flux proceeding from a field generator, comprising the steps of:

supplying a magnetization pulse to each flux pickup, said pulse having a characteristic such that the pulse height and width cause saturation of each flux pickup;

measuring the field flux from the field generator with each flux pickup after the magnetization step, and during a period when the remanence of each pickup due to said saturation is at a maximum.

4,383,536

STRAW SPREADER

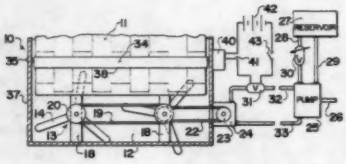
Guy Delorme, Box 307, Willow Bunch, Saskatchewan, Canada (S0H 4K0)

Filed Nov. 25, 1981, Ser. No. 324,832

Claims priority, application Canada, Jun. 3, 1981, 378929

Int. Cl.³ A01F *12/56*; E01C *19/20*; A01D *75/28*

U.S. Cl. 130—27 R **16 Claims**



1. A straw spreader assembly for use with a combine, thresher or the like which include straw discharge devices such as straw walkers; comprising in combination straw spreader means situated in the path of the discharging straw, means to drive said straw spreader means and means cooperating with the straw discharge device to monitor the amount of straw being discharged by said device, said means cooperating with the straw discharge device being operatively connected to said means to drive said straw spreader means to vary the speed of said straw spreader means depending upon the amount of straw being discharged, thereby maintaining a substantially even layer of straw being spread.

4,383,537

METHOD AND APPARATUS FOR INSPECTING AND CUTTING CIGAR WRAPPERS

Rijk van de Haar, Joure, Netherlands; Brian M. Hopkins, Cambridge, England, and Jan C. van Hattem, Amerongen, Netherlands, assignors to Douwe Egberts Koninklijke Tabaksfabriek-Koffiebranderijen-Theehandel B.V., Utrecht, Netherlands

Filed Aug. 18, 1978, Ser. No. 934,993

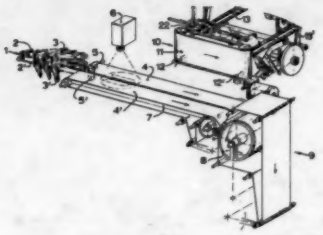
Claims priority, application United Kingdom, Aug. 25, 1977, 35631/77

Int. Cl.³ A24C *5/00*

U.S. Cl. 131—280 **19 Claims**

1. A system for the automatic cutting of a portion out of tobacco leaves for cigar wrappers comprising:

optical means for scanning a plurality of discrete areas of said leaf to locate at least one substantially hole-free region comprised of a plurality of discrete areas free from holes, each said region being of a predetermined form and to store the location of each said hole-free region including a television camera with scanning frames which can be preset to correspond with a preselected variety of frames of preselected size and shape for producing a video output by scanning in each frame a plurality of lines in a scanning direction parallel to the leaf stem, means for deriving from said video output a reference signal, means for comparing said video signal with said reference signal and producing a first binary signal when said reference signal is less than said video signal and a second binary signal when said reference signal is greater than said video signal, means for sequentially storing said first and second binary signals received at an input and for providing the stored signals at an output, logic means having an input connected to said storing and providing means output and to said comparing and producing means and an output to said storing and providing means for applying binary signals to said input



to produce a stored signal in said storing and providing means representing superimposed lines and indicating the location of holes at each point of each of said lines along said scanning direction, and means for determining, at the end of scanning, whether said stored signal indicates at least one hole-free area, and

means for cutting said leaf in accordance with said stored location to produce said portion.

4,383,538

APPARATUS FOR MOISTURE AND HEAT CONDITIONING COMPACTED TOBACCO MASS

Hoyt S. Beard; Daniel G. Williard, both of Winston-Salem, and Marvin G. Woempner, Thomasville, all of N.C., assignors to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.

Filed Apr. 10, 1981, Ser. No. 252,989

Int. Cl.³ A24B *3/02, 3/12*

U.S. Cl. 131—300 **18 Claims**

1. Apparatus for conditioning a tobacco mass, comprising:

a probe assembly including

a multiplicity of parallel, hollow, perforated probes; and

means for flexibly mounting said probes to prevent bending of said probes upon insertion into said tobacco mass;

means for mounting said assembly for reciprocating motion along a path between a normal retracted position and an extended position;

means for transporting a tobacco mass into the path of said assembly;

means driving said assembly along said path from said retracted position to said extended position to insert said probes into said tobacco mass and from said extended position back to said retracted position to extract said probes from said tobacco mass; and

means for conducting tobacco conditioning fluid to said hollow probes for conditioning the tobacco mass.

4,383,539

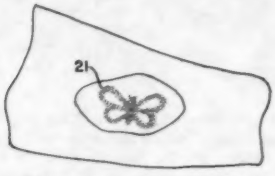
COSMETIC PREPARATION AND METHOD FOR APPLYING SAME

Alan L. Collins, and Joseph A. Vota, both of 15 Columbus Cir., New York, N.Y. 10023

Continuation of Ser. No. 926,588, Jul. 20, 1978, abandoned. This application Jun. 9, 1980, Ser. No. 157,715

Int. Cl.[2] A45D *40/30*

U.S. Cl. 132—88.5 **5 Claims**



1. A cosmetic preparation comprising: a cosmetic powder comprising mica, titanium dioxide, PVP and a bacteriostat and implanted into a film of fixative on an area of the body by applying one of a liquid or gel fixative to the area, allowing the fixative to partially dry to form a film, applying the cosmetic powder to the partially dried fixative and allowing the fixative to completely dry, wherein the powder is maintained in position by a fixative and some particles project outwardly from the film and are thereby exposed.

4,383,540

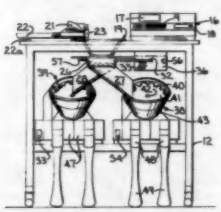
FEEDING MECHANISM FOR DUAL COIN SORTERS OPERATING IN PARALLEL

Roy W. De Meyer, Oconomowoc; Frederick H. Harder; Arnold R. Buchholz, both of Watertown; Richard P. Uecker, Juneau, and John A. Kressin, Watertown, all of Wis., assignors to Brandt, Inc., Watertown, Wis.

Filed May 4, 1981, Ser. No. 260,215

Int. Cl.[3] G07D *3/00*

U.S. Cl. 133—3 H **5 Claims**



1. Coin processing apparatus which comprises:

a frame which supports a counter top;

a coin hopper supported by the frame with an upwardly opening entrance that communicates with the region above the counter top and with a downwardly opening exit that opens below the counter top;

a receptacle disposed on the counter top, the receptacle being adapted to discharge coins into the entrance of the coin hopper to define a coin feeding path from the interior of the receptacle through the coin hopper exit;

a coin-splitting chute coupled to the exit end of the coin hopper and having a mouth in communication with the hopper exit, the coin-splitting chute having a throat that extends downwardly from its mouth and means positioned in its throat for diverting one portion of a first batch of coins received therein to one chute exit and another portion of the first batch of coins to the other chute exit;

two coin sorters carried by the frame below corresponding coin chute exits for receiving and sorting the respective portions of each batch of coins that is split by travel through the coin chute, the coin sorters each having means for generating a signal to regulate the incoming flow of coins; and

feed control means extending into the coin feeding path and responsive to the signals from the coin sorters for controlling delivery of a second batch of coins to the coin-splitting chute.

4,383,541

COIN ACCUMULATOR ASSEMBLY FOR COIN WRAPPING MACHINE

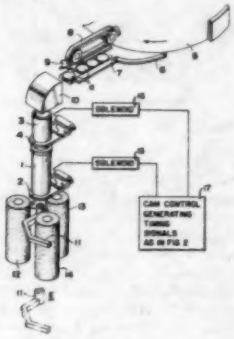
Isamu Uchida, Tokyo, Japan, assignor to Laurel Bank Machine Co., Ltd., Tokyo, Japan

Filed Sep. 17, 1980, Ser. No. 187,991

Claims priority, application Japan, Sep. 21, 1979, 54-121817

Int. Cl.[3] G07D *9/00*

U.S. Cl. 133—8 A **4 Claims**



1. A coin accumulator assembly for use in a coin wrapping machine having means for counting coins, means for delivering counted coins to the coin accumulator assembly, a wrapping station for receiving coins from the coin accumulator assembly and for wrapping the received coins, and delivering means for delivering coins from the coin accumulator assembly to the wrapping station, wherein a predetermined number of coins is counted and subsequently accumulated in the coin accumulator tube assembly and then delivered to the wrapping station to be wrapped by a web of wrapping sheet material during each operation cycle, said accumulator assembly comprising:

a stationary main accumulator tube adapted to receive the predetermined number of counted coins;

a main shutter fixedly positioned relative to and just below the main accumulator tube for supporting coins contained within the main accumulator tube when the main shutter is closed and for passing the coins from the main accumulator tube to said delivering means when the main shutter is opened;

a subsidiary accumulator tube fixedly positioned relative to and just above the main accumulator tube and adapted to temporarily receive counted coins therein;

a subsidiary shutter fixedly positioned relative to and between the main accumulator tube and the subsidiary accumulator tube for supporting coins within the subsidiary accumulator tube when the subsidiary shutter is closed and for passing the coins from the subsidiary accumulator

tube to the main accumulator tube when the subsidiary shutter is opened;

control means for causing said main and subsidiary shutters to operate according to a predetermined sequence, said sequence including closing the subsidiary shutter to temporarily accumulate counted coins while the main shutter is open to transfer the predetermined number of counted coins to the delivering means and opening the subsidiary shutter, after the main shutter is closed, to deliver coins temporarily accumulated in the subsidiary accumulator tube to the main accumulator tube.

4,383,542

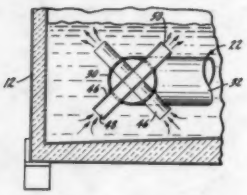
CLEANING MACHINE

Wayne H. Hanson, Minnesota City; Derrick L. Heyl, Rolling Stone, both of Minn.; Bradley D. Krause, Cochrane, Wis.; Richard C. Kravik, Minnesota City, Minn.; Gerald P. Lawson, and Jerry L. Schueler, both of Winona, Minn., assignors to Winona Tool Manufacturing Company, Winona, Minn.

Filed May 15, 1981, Ser. No. 263,874

Int. Cl.³ B08B 3/10

U.S. Cl. 134—105 **2 Claims**



1. In a parts cleaning machine, a generally upright cabinet with a sump in the bottom for a cleaning solution, a door in the wall of the cabinet providing access to the interior thereof, a soure of hot gas connected to the cabinet and communicating with the sump, a heat exchanger in the sump connected to the hot gas source, the heat exchanger including an irregular tube passage in the sump connected to a flue discharge that extends outside of the cabinet, and a plurality of transfer ducts at spaced intervals extending through the tube passage, smaller in cross section than the tube passage, to provide for fluid flow in a generally vertical direction through the tube passage disposed generally at right angles to the direction of hot gas flow to provide for heat transfer at the same time that the fluid is receiving heat from the outside of the tube passage, the transfer ducts being in the form of pipes which extend through the tube passage and project somewhat on each side thereof, each of the pipes being inclined at about a 45° angle to the vertical with the angle of inclination alternating from one pipe to another.

4,383,543

LIQUID TENSION-SENSITIVE GAS VALVES

Stephen L. Rawlins, 4461 Picacho Dr., Riverside, Calif. 92507

Filed Jan. 26, 1981, Ser. No. 228,108

Int. Cl.³ A01G 25/00

U.S. Cl. 137—78.3 **15 Claims**

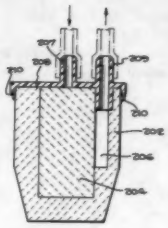
1. A liquid tension-sensitive gas valve for use in an environment containing liquid comprising:

gas inlet means;

gas outlet means;

internal porous means, disposed internally within said valve between said inlet and outlet means and having a plurality of pores with pore openings that are closed when filled with liquid and that are open when the tension of liquid therein has increased beyond a predetermined level, for preventing the movement of gas between said inlet and outlet means when the moisture content of said internal porous means has increased to cause said tension to decrease below said predetermined level wherein said pores are closed, and for permitting said movement when said moisture content has decreased to cause said tension to exceed said predetermined level, wherein said pores are open; and

external porous means, having a plurality of pores and disposed between said internal porous means and said environment, for restrictably passing liquid between said environment and said internal porous means, thereby allowing the moisture content of said environment to control the movement of gas through said valve through said internal porous means.



4,383,544

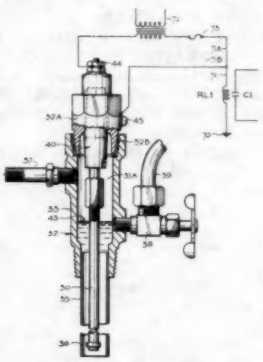
BOILER LOW WATER LEVEL SENSING DEVICE

George W. Vosper, 149 Earl St., Kingston, Ontario, Canada (K7L 2H3)

Continuation-in-part of Ser. No. 183,749, Sep. 3, 1980, which is a continuation-in-part of Ser. No. 60,488, Jul. 25, 1979, abandoned. This application Feb. 17, 1981, Ser. No. 234,636

Int. Cl.³ F22B 37/46

U.S. Cl. 137—94 **14 Claims**



1. In a pressure heating system having water in a boiler and a low water level sensor and safety cut-off device associated with the boiler and operable to shut off the system when the water in the boiler drops below a predetermined level, said low water sensor device comprising:

(a) a housing having respective upper and lower portions electrically insulated from one another and defining a cavity therein;

(b) means mounting said housing on said vessel adjacent the upper portion thereof;

(c) a sensor in said cavity comprising an elongate electrode responsive to the liquid level in the cavity and operably associated with the burner of the system to shut off the same when the liquid level in the boiler drops below a predetermined level, said electrode being suspended from said upper portion of the housing and electrically insulated therefrom;

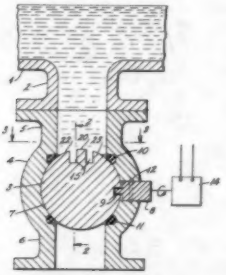
(d) passage means providing fluid communication between a lower portion of said cavity and the interior of said vessel;
(e) gas release passage means in said housing for releasing gas from said cavity, said gas release passage means being located at a position spaced downwardly from the upper end of the cavity and exteriorly of the vessel;
(f) first terminal means connected to said electrode; and,
(g) second terminal means connected to said upper portion of said housing.

4,383,545

AUTOMATIC DRAIN SYSTEM FOR COMPRESSED AIR SYSTEMS AND THE LIKE

Philip S. Becker, Erie, Pa., assignor to Valex, Inc., Erie, Pa.

Filed Mar. 30, 1981, Ser. No. 249,030
Int. Cl.³ G05F *11/22*
U.S. Cl. 137—204 **11 Claims**



1. In combination with a compressed air system and the like having a liquid collecting sump under the elevated pressure of the air system, a valve for draining the sump without substantial loss of air comprising a valve body having an inlet connected to receive liquid from the sump under said elevated air pressure and an outlet for said liquid to a lower pressure, a ball member rotatable on an axis in the body for blocking flow through the body in all angular positions of the member, means for continuously rotating the ball member on said axis, said member having openings spaced on opposite sides of a plane normal to said axis and through the center of the ball, said openings being presented to the inlet in a first angular position of the member to receive liquid from the inlet, said openings being presented to the outlet in a second angular position of the member to empty the liquid, a first annular seal concentric with the inlet for making sealing engagement with the ball around said openings in said first position, and a second annular seal spaced from the first seal and concentric with the outlet for making sealing engagement with the ball around said openings in said second position.

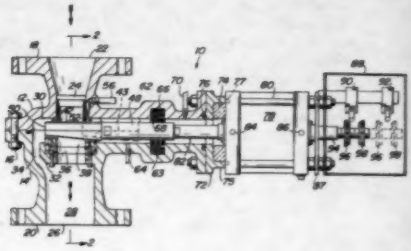
4,383,546

HIGH TEMPERATURE, HIGH PRESSURE VALVE

Thomas Walters, Jr., Primos, Pa., assignor to Ecolaire Incorporated, Malvern, Pa.

Filed Dec. 1, 1980, Ser. No. 211,878
Int. Cl.³ B08B *3/04*; F16K *3/12, 31/122*
U.S. Cl. 137—240 **12 Claims**

1. A gate valve comprising a body having a top inlet connected to an inlet passage and a bottom outlet connected to an outlet passage, said passages communicating with a chamber therebetween, a valve seat concentric with said inlet passage, an annular wedge opposite said seat, an imperforate valve head having a seating face adjacent said seat for contact therewith in a closed position, an opposite surface of said head being angled and in contact with said wedge, motor means for reciprocating said head between open and closed positions, a sleeve in said inlet passage with one end thereof contacting said seating surface of said head, said sleeve outer diameter and said seat inner diameter cooperating with the body and head seating surface to define an annular space, means to introduce a pressurized gas into said space for cleaning the interface between



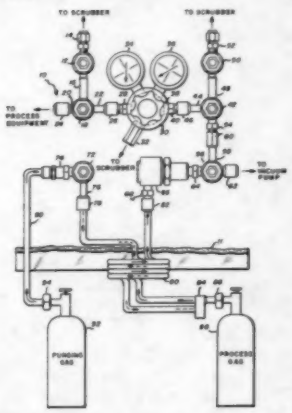
said head seating surface and seat just prior to contact between said head seating surface and seat, and a channel providing open communication between an end face of said head and said outlet.

4,383,547

PURGING APPARATUS

Andrew K. Lorenz, San Jose, and Scott R. Mobley, Los Gatos, both of Calif., assignors to Valin Corporation, Sunnyvale, Calif.

Filed Mar. 27, 1981, Ser. No. 248,519
Int. Cl.³ B08B *9/02*
U.S. Cl. 137—240 **9 Claims**



1. A purging apparatus comprising:
first source means for receiving a purging gas source;
first valve source means connected to the first means for receiving said purging gas source for controlling the flow of said purging gas;
a first flexible tube connected to the first valve means;
a process gas connector including connecting means for connecting to a process gas supply, a process gas port, a process gas channel between said process gas port and said connecting means for connecting to said process gas supply, an injection port, and an injection channel between said injection port and said process gas channel, said injection port being connected to the first flexible tube and intersecting said process gas channel at an acute angle and in close proximity to the process gas source;

a second flexible tube connected about one end to said process gas port of the process gas connector;

second valve means being connected to the second flexible tube and conduit means for receiving the process gas flow, the second valve means having a vent port and a process port for directing gas flow from the second flexible tube to said vent port or to said process port;

third valve means connected to said vent port of the second valve means for controlling the release of gas from the purging apparatus;

a regulator having a high pressure port and a low pressure port, said high pressure port of the regulator connected to said process port of the second valve means;

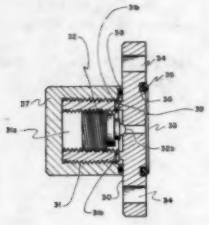
means for connecting process equipment to said low pressure port of the regulator and said purging gas purges the first and second flexible tubes, the process gas connector, the first, second, and third valve means, the conduit means and exits the vent ports of the second and third valve means.

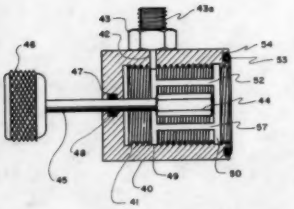
4,383,548

EVACUATING-CHARGING VALVE ASSEMBLY

Peter Durenec, Annandale, and Aubrey J. Dunn, Springfield, both of Va., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Dec. 30, 1981, Ser. No. 335,926
Int. Cl.³ F16K *43/00, 31/44*
U.S. Cl. 137—321 **1 Claim**





1. A fluid system valve and connector head combination including: a valve fitting adapted for permanent connection to said fluid system and a connector head adapted for temporary connection to said valve fitting, wherein said valve fitting includes:

a flange portion and a boss portion, a threaded longitudinal bore through said boss portion, a smooth longitudinal bore through said flange portion, communicating and coaxial with said threaded bore, but of less diameter, a set screw in said threaded bore having a ball point end and a socket end, wherein the ball point is of greater diameter than said smooth bore and whereby, when said set screw is seated, said ball point blocks said smooth bore, and means defining a fluid passageway through said boss portion from said smooth bore when said ball point is unseated;

wherein said connector head includes:

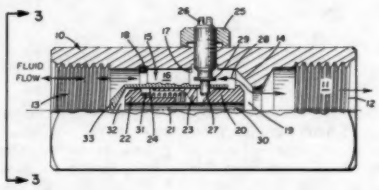
a body adapted for threadably attaching to said boss portion of said valve fitting, a fluid passageway in said body communicating with the fluid passageway of said valve fitting, and a set screw wrench in said body with means partly external to the body for operating said wrench both in rotation about and translation along the longitudinal axes of said body and said boss portion of said valve fitting; wherein said body of said connector head is hollow and is internally threaded and said boss portion is externally threaded whereby said head screws onto said boss and said means defining includes at least one bore through the wall of said boss, and said fluid passageway of said body includes at least one groove in said body so that said one bore and said one groove will be in alignment with one another and in fluid communication when said head is fully screwed onto said boss, and further wherein said means partly external includes a longitudinal shaft attached to said wrench and with a portion extending outside said body, and a manipulating knob on the portion of said shaft outside said body.

4,383,549

ADJUSTABLE VELOCITY FUSE FOR HYDRAULIC LINE

Ojars Maldavs, Lincoln, Nebr., assignor to Imperial Clevite Inc., Rolling Meadows, Ill.

Filed Apr. 22, 1981, Ser. No. 256,379
Int. Cl.³ F16K *17/34*
U.S. Cl. 137—514.7 **9 Claims**



1. An adjustable velocity fuse for a hydraulic line comprising a tubular body providing an internal valve seat, a guide fixed in said body axially spaced from said seat, a poppet assembly axially slideably mounted in said guide and including a poppet head engageable with said seat, a spring operably associated with said guide and poppet assembly for resiliently biasing said poppet head away from said seat, and an externally adjustable adjusting screw in said body for urging said poppet head toward and away from said seat for determining the spacing between said poppet head and seat while still providing for said poppet head to be engageable with said seat, said adjusting screw having a portion located outside of the flow stream in said hydraulic line.

4,383,550

CONSTANT FLOW VALVE

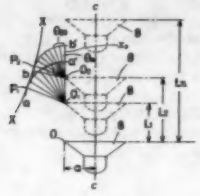
Rikuta Sotokazu, 24-7, 2-chome, Koun-cho, Maebashi-shi, Gunma-ken, Japan (371)

Filed Oct. 30, 1981, Ser. No. 316,472
Claims priority, application Japan, Nov. 26, 1980, 55-166016
Int. Cl.³ F16K *21/02;* F15D *1/04*
U.S. Cl. 137—517 **3 Claims**

1. A constant flow valve comprising a tubular conduit fitting having a tubular flow restrictor fixed within said tubular conduit fitting, said flow restrictor having an inner surface which has as the generatrix thereof a curved line X—X, an inner valve mounted within said conduit fitting opposite to said flow restrictor by means of a spring, one end of said spring being held within said conduit fitting, said curved line X—X osculating with a plurality of curves, each of which is formed by:

(a) applying equations in each of the positions which said

inner valve holds when a plurality of the displacements thereof are L_n's, the equations being:



$$x = \frac{-a + \sqrt{a^2 + \frac{F_n \tan \theta_n}{\pi \sqrt{\tan^2 \theta_n + 1}}}}{\tan \theta_n}, \quad (1)$$

$$F_n = \frac{K\sqrt{L_n}}{Qu} \left(K = \alpha \sqrt{\frac{2gk}{\gamma A}} \right), \quad (2)$$

$$y = a + x \tan \Theta_n \quad (3)$$

and

$$z^2 = x^2 + (y-a)^2 \quad (4),$$

where

a=the radius of the flat portion of the inner valve,

F_n=the required orifice area which constitutes the effective area of fluid flow through the restrictor,

α=the coefficient of discharge,

g=the acceleration due to gravity,

k=the spring constant,

A=the pressure-receiving area,

γ=the specific gravity of fluid,

z=the line segment ($z_{0°} \sim z_{90°}$) which constitutes the generatrix of the lateral surface of the required truncated cone, and

Θ_n=the angle (0°~90°) between the line segment and the axis of the constant flow valve;

(b) drawing the line segments z's ($z_{0°} \sim z_{90°}$) on a plane passing through the axis of said constant flow valve so that one end of each of the line segments z's is located at one of two points of intersection of the plane and the downstream edge of said inner valve, and the line segments z's make their respective angles Θ_n's (0°~90°) with the axis of said constant flow valve and correspond in length to their respective angles Θ_n's; and

(c) connecting the other ends of said line segments z's.

4,383,551

ANTI-HAMMER DEVICE FOR PULSED LIQUID-MERGING SYSTEM

M. Dee Lynch, Beaverton, and James W. Bernklau, Tigard, both of Oreg., assignors to Quadratec Associates, Beaverton, Oreg.

Filed Feb. 9, 1982, Ser. No. 347,104

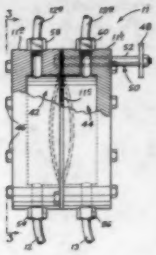
Int. Cl.³ F16L 55/04

U.S. Cl. 137—593 **1 Claim**

1. In combination with a liquid-supply system, wherein liquids from two different input conduits are alternately pulse-blended and merged into a single output conduit, with liquid from substantially one-only of such two input conduits flowing at a given time into the output conduit, a shared anti-hammer device for minimizing liquid hammer in both of the input conduits comprising

a housing defining an inside void space,

a flexible diaphragm secured to said housing and spanning said void space so as to divide the same into two liquid-receiving through-flow plenums, and



for each plenum, a pair of fittings connecting the plenum for through-flow liquid communication with a different one of such two input conduits.

4,383,552

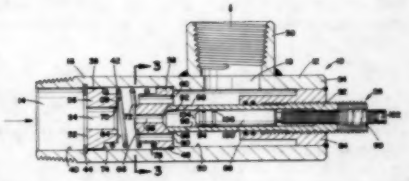
ADJUSTABLE CHOKE

William T. Baker, Millersburg, Ohio, assignor to Multi-Products Company, Millersburg, Ohio

Filed Oct. 16, 1981, Ser. No. 312,160

Int. Cl.³ F15D 1/02

U.S. Cl. 138—46 **17 Claims**



1. An adjustable choke apparatus for regulating fluid flow through a pipeline comprising:

a housing including an inlet port and an outlet port;

a first moveable member having a first port and contained in said housing contiguous to said inlet port;

a second moveable member contained in said housing including a second port, at least one third port, an opposed end face configured for flow-sealing engagement with a first end face of said first member, and an outlet end face, said second port being aligned with said first port;

means for compressibly biasing said first moveable member away from said second moveable member;

means for selectively sealing said second port at said outlet end face; and,

means for selectively engaging said first end face with said opposed end face for closing said third port;

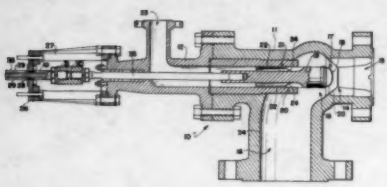
whereby upon impingement of a relatively high pressure flow against said first adjustable member, said first member is effected into sealing engagement with said second adjustable member and said third port is closed against flow, and whereby upon dissipation of said relatively high pressure flow, said first member is biased away from said second member to open said third port to flow.

4,383,553

VISBREAKER LETDOWN VALVE

Robert J. Platt, Randolph, N.J., assignor to Exxon Research and Engineering Co., Florham Park, N.J.

Filed Oct. 19, 1981, Ser. No. 312,238
Int. Cl.³ F15D *1/08*
U.S. Cl. 138—46 **9 Claims**



1. A letdown valve for reducing the pressure of a liquid, comprising:

means defining a flow path for said liquid;

means defining a valve throat disposed in said flow path, said valve throat throttling said liquid wherein at least a portion of said liquid will flash into vapor;

means defining a high pressure valve inlet upstream of said valve throat;

means defining a low pressure valve outlet downstream of said valve throat;

a movable elongated cylindrical plug disposed adjacent said throat; and

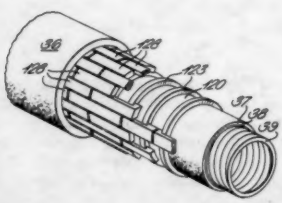
bushing means including an end portion projecting into said flow path for supporting and guiding said plug for axial movement therein, said plug including a plurality of channels running axially therein for introducing quenching fluid into said flow path, said channels being arranged concentrically in an annular ring within said plug and each having an axis extending parallel to the axis of said plug and wherein each of said channels terminates in a curved vent portion for directing said quenching fluid radially outward into said flow path adjacent said bushing means end portion.

4,383,554

FLEXIBLE PIPE

Horace B. Merriman, South Ascot, England, assignor to Mobil Oil Corporation, New York, N.Y.

Filed Jul. 14, 1981, Ser. No. 282,994
Claims priority, application United Kingdom, Jul. 31, 1980, 8025015
Int. Cl.³ F16L *11/18*
U.S. Cl. 138—101 **18 Claims**



1. A flexible pipe comprising first means including a first set of stress bearing elements extending substantially the whole length of the pipe, for accommodating maximum hoop stress resulting from flow of pressurized fluid through the pipe, and second means including a second set of stress bearing elements in the form of a series of keepers circumferentially staggered around said first set of elements which are arranged to hold said first set of elements in place and limit relative movement thereof extending substantially the whole length of the pipe for accommodating longitudinal stress resulting from a flow of pressurized fluid through the pipe.

4,383,555

HELICALLY WOUND HOSE FROM CO-EXTRUDED PROFILE WITH REINFORCING RIBS INTERLOCKED AT ADJACENT CONVOLUTIONS

Richard O. Finley, Redondo Beach, Calif., assignor to Plastiflex Company International, Fountain Valley, Calif.

Filed Apr. 20, 1976, Ser. No. 678,547
Int. Cl.³ F16L *11/08*
U.S. Cl. 138—129 **36 Claims**

1. A strip for use in forming a flexible hose from helically wound convolutions of said strip comprising in unconvoluted cross-section:

a web component having opposed edges and two individual side components, each of which is continuously attached at the respective edges of said web component, each of said side components comprising material having hardness higher than that of at least a part of said web component for rendering both said side components with a relatively stiff and bend resistant characteristic and said web component with a relatively flexible characteristic.

34. A flexible hose comprising an elongated strip helically wound into tubular form with one strip margin secured to an adjacent margin at adjoining convolutions of said strip, characterized in that:

said strip comprises a co-extrusion of at least two structural components;

each of said margins has a material hardness higher than that of another part of said strip; and

said margins are bonded and sealed together at the adjoining convolutions to form a helically extending interlocked rib, said rib being relatively stiff with respect to said other part of said strip.

4,383,556

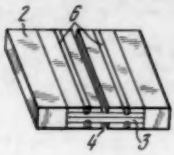
CRACK ARRESTING DEVICE FOR LIMITING PROPAGATION OF CRACKS IN WELDED STRUCTURES FABRICATED FROM SHEETS

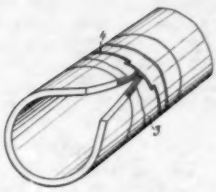
Paton B. Evgenievich, ulitsa Chkalova, 41a kv. 26; Biletsky, S. Mikhailovich, ulitsa Vernadskogo, 69a kv. 9; Tereschenko A. Fedorovich, bulvar Lesi Ukraninki, 2, kv. 66, and Barvinko J. Pavlovich, Darnitsky bulvar, 9, kv. 41, all of Kiev, U.S.S.R.

Filed Feb. 10, 1981, Ser. No. 233,200
Int. Cl.³ F16L *13/02*
U.S. Cl. 138—172 **9 Claims**

1. A crack arresting device for limiting propagation of cracks in a welded construction fabricated of a plurality of interconnected sections formed of sheets, said crack arresting device being made in the form of a multi-layer section integrally interposed between confronting edges of adjacent ones of the interconnected sections formed of sheets, wherein at least in one layer of said multi-layer section there is provided at least one slot, spaced from the edges of the layer connected to the confronting edges of the adjacent ones of the sections formed of sheets and located at an angle to a probable direction of propagation of cracks from a first of the adjacent ones of the sections formed of sheets, the slot defining an open space within the at least one layer for stopping propagation of cracks from the first to a second of the adjacent ones of the sections formed of sheets, at both sides of a slot in an outer layer of said multi-layer section there are formed melted-through weld

joints spaced from the confronting edges of the adjacent ones of the sections formed of sheets, with the fusion penetration





exceeding the thickness of the layer containing the slot to thereby ensure tightness of the crack arresting device.

4,383,557

WEAVING HEDDLE

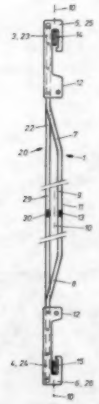
Martin Graf, Horgenberg, Switzerland, assignor to Grob & Co. Aktiengesellschaft, Horgen, Switzerland

Filed Feb. 27, 1981, Ser. No. 238,977

Claims priority, application Switzerland, Mar. 5, 1980, 1730/80

Int. Cl.³ D03C *9/02*

U.S. Cl. 139—93 **1 Claim**



1. A heddle pair having two thread eyes, comprising elongated first and second strips of material of constant cross-section throughout the entire length thereof, said strips each having opposed end sections and central sections between said end sections, said central sections respectively containing said thread eyes which lie in the same horizontal plane, open end loops attached to said end sections of said strips and respectively overlapping, said end loops extending laterally from said strips in one direction and having bearing surfaces for engaging heddle carrying rods of a heddle frame, said bearing surfaces lying along a common axis, said central section of said first strip being bent and offset from said axis in said one direction, said second strip being straight with said central section thereof offset from said axis in a direction opposite said one direction, and said central sections lying parallel to said axis.

4,383,558

WOVEN SLIDE FASTENER STRINGER

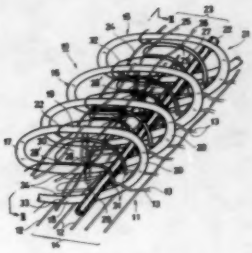
Noritaka Tsubata, Uozu, and Muchiji Shimono, Namerikawa, both of Japan, assignors to Yoshida Tokyo K. K., Tokyo, Japan

Filed Feb. 19, 1981, Ser. No. 235,917

Claims priority, application Japan, Feb. 20, 1980, 55-20015

Int. Cl.³ D03D *1/00*; A44B *19/34*

U.S. Cl. 139—384 B **6 Claims**



1. A woven slide fastener stringer comprising:

(a) a woven stringer tape woven with foundation warp threads and a foundation weft thread and having a longitudinal edge portion;

(b) a row of continuous coupling elements disposed on said longitudinal edge portion and defining a space therethrough, each of said coupling elements including a coupling head, a pair of spaced legs extending from said coupling head, one of said legs being mounted on said tape edge portion, and heel portions extending respectively from said legs remotely from said coupling head; and

(c) a binding thread system extending along said row of continuous coupling elements and fixing the latter to said longitudinal tape edge portion, said binding thread system including

(1) a binding warp thread extending through said space and underlying the other legs adjacent to said coupling heads,

(2) a binding weft thread having first loops looping around said foundation weft thread in said space adjacent to said heel portions, and second loops each overlying the other leg of one of said coupling elements in transverse relation adjacent to said coupling head and underlying said binding warp thread at positions one on each side of said other legs,

whereby said other legs are sandwiched between said binding warp thread and said second loops of said binding weft thread.

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APPARATUS FOR TRANSFERRING COILS OR BUNDLES OF ROD OR WIRE

Georg Kling, Bennauer Strasse 4, 5300 Bonn, Fed. Rep. of Germany

Filed Aug. 25, 1980, Ser. No. 180,830

Claims priority, application Fed. Rep. of Germany, Aug. 25, 1979, 2934439

Int. Cl.³ B21F *3/04*

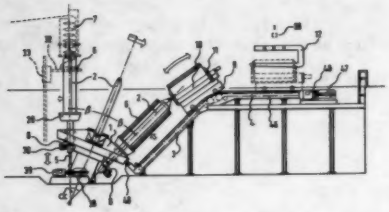
U.S. Cl. 140—92.2 **14 Claims**

1. Apparatus for transferring coils or bundles of rod or wire, comprising:

a turntable rotatable about an axis inclined to a vertical axis;

a plurality of circumferentially-spaced mandrels carried on said turntable and having axes disposed at an angle to said

axis of said turntable, wherein the angle is substantially equal to an angle between said axis of said turntable and said vertical axis, whereby as said turntable rotates, each of said mandrels moves between a substantially vertical uppermost position and a substantially lowermost position inclined at an angle both to the vertical axis and to a horizontal axis;



conveying means comprised of a track having an inclined portion adjacent to and substantially parallel to said axes of said mandrels in said lowermost position; and

means for transferring said coils or bundles between said mandrels in said lowermost position and said conveying means.

4,383,560

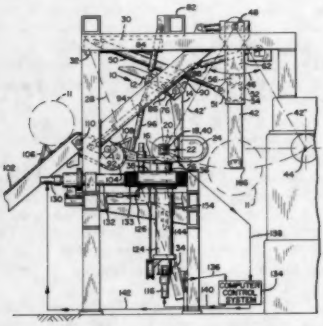
LATHE CHARGER HAVING DIRECTIONALLY LIMITED ADJUSTMENT OF SCANNING SPINDLES

Arthur L. McGee, Lake Oswego, Oreg., assignor to The Coe Manufacturing Company, Painesville, Ohio

Continuation-in-part of Ser. No. 154,201, May 29, 1980, Pat. No. 4,335,763. This application Nov. 20, 1980, Ser. No. 208,638

Int. Cl.³ B27L *5/02*

U.S. Cl. 144—209 A **18 Claims**



1. Log processing apparatus, comprising:

log support and centering means for supporting and positioning a log with its axis roughly centered at a scan axis position;

charger spindle means for engaging the ends of the log after rough centering and for rotating said log about a spindle axis;

scanning means for scanning the log with electromagnetic radiation as said log is rotated in said scan axis position by said charger spindle means, to determine the optimum yield axis of the log for optimum wood production;

clamp means for engaging the ends of the log while said charger spindle means still engages said log after the log is moved by the charger spindle means to a transfer position;

spindle support and adjustment means for adjusting the position of the charger spindle means and being capable of moving said spindle means away from said clamp means a greater distance than toward said clamp means;

control means for causing the charger spindle means to rotate the log to a different rotational position after scanning to enable the spindle support and adjustment means to move the log through its greatest adjustment in a direction other than toward the clamp means;

said support and adjustment means being controlled by said control means to move the charger spindle means to a transfer position where the log has its optimum yield axis located at a predetermined position relative to a work axis; and

transfer means for moving said clamp means after it engages the ends of the log in said transfer position and the charger spindle means is disengaged, to transfer the log from said transfer position to a work position where the log is cut when the optimum axis of the log is aligned with the work axis.

4,383,561

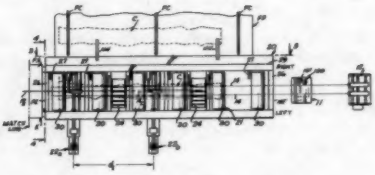
INFEED TABLE FOR LUMBER EDGER

James L. Gregoire, Decatur; Robert D. Wismer, Roswell, and Robert L. Brouer, Conyers, all of Ga., assignors to Forest Industries Machine Corp., Conyers, Ga.

Filed Apr. 6, 1981, Ser. No. 251,131

Int. Cl.³ B27B *1/00, 31/06*

U.S. Cl. 144—245 A **10 Claims**



1. An infeed table for an edging device adapted to trim the longitudinal wane edges of a sawn cant to produce dimensioned lumber from the cant as the cant is moved therethrough along a prescribed edging path, said infeed table including

a support frame;

infeed conveyor means for feeding the sawn cant longitudinally into said edging device along the edging path;

first and second clamping means positioned along said infeed conveyor means at spaced apart positions, each of said first and second clamping means having a clamping position clamping the cant therein and a release position releasing the cant onto said infeed conveyor means for movement of the cant into the edging device along the edging path, each of said clamping means including positioning means for selectively shifting said clamping means transversely of the prescribed edging path to selectively position the cant on said infeed conveyor means with respect to the edging path;

manually operated clamp control means for selectively moving said first and second clamping means to the clamped position when manually activated and for selectively moving said first and second clamping means to the release position when manually released;

manually operated positioning control means for selectively causing said positioning means to shift said first and second clamping means transversely of the edging path to selectively position opposite ends of the cant with respect to the edging path;

automatic positioning control means for causing said positioning means to center said first and second clamping means with respect to the edging path; and

interconnect means interconnecting said manually operated clamp control means, said manually operated positioning control means and said automatic positioning control

means so that said manually operated positioning control means is enabled while said clamp control means is manually activated and disabled while said clamp control means is manually released and so that said automatic positioning control means is enabled while said clamp control means is manually released and disabled while said clamp control means is manually activated.

4,383,562

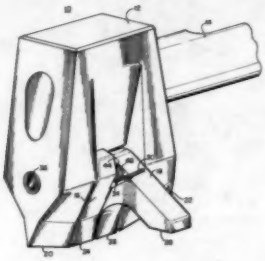
SPLITTING DEVICE

Mark E. Hockman, 672 Mount Rd., Aston, Pa. 19014

Filed Aug. 28, 1980, Ser. No. 182,149

Int. Cl.³ B26B *23/00*

U.S. Cl. 145—2 R **6 Claims**



1. A device for splitting logs comprising

a head portion having two elongated converging sides forming a cutting edge at the intersection thereof, said cutting edge defining an edge plane in the direction of elongation and between the sides, said head portion having an opening therethrough from side to side,

a single pivot member within and across said opening, the longitudinal axis of said pivot member being generally parallel to said cutting edge and disposed within said edge plane,

a pair of splitting levers pivotally mounted on said pivot member, each having a splitting face section separated from a log-engaging end, in its rest position the long axis of said splitting face section lies substantially within the edge plane, each splitting lever being swingable in a direction transversely of a respective side of said head portion,

each splitting lever having its log-engaging end engage an end of the log shortly after the head portion contacts the log end with force to cause said cutting edge to penetrate and to form a split therein, as the head portion enters the split the log-engaging ends are thrust against the log and each entirely displaced from corners of the split, and a lever plane defined between each log-engaging end and, perpendicular to, the long axis of the splitting face section, a void formed in each splitting lever on the side of said lever plane away from the cutting edge and between the log engaging end and the splitting face section such that as the head portion further enters the split, the splitting lever pivots and the corner of the split enters the void and moves therein without binding on the splitting lever.

4,383,563

GOLF BAG

Christian H. Kirchhoff, Jr., 108B Chestnut St., Millville, N.J. 08332

Filed Jul. 28, 1981, Ser. No. 287,626

Int. Cl.³ A63B *55/00*

U.S. Cl. 150—1.5 R **32 Claims**

1. A golf bag, comprising:

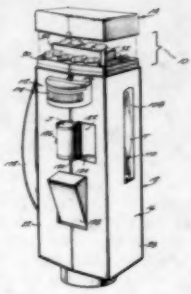
a body including a generally tubular perimetrical sidewall and a lower end wall providing an interior space;

means providing an upper deck for said body;

means providing a plurality of individual generally longitudinally oriented wells in said interior space, each opening through said deck and being adapted to axially slidingly removably receive an elongated item of golfing equipment such as a golf club shaft, handle end first;

means on said deck individually associated with each of at least several of said wells for removably accepting and holding a respective golf club head means;

each said well being constituted by a respective tube having opposite ends mounted and extending between said deck and said lower end wall;



at least one of said tubes including means extending throughout a portion of the length thereof constructed and arranged for resiliently gripping a corresponding portion of the respective golf club when such respective golf club is received handle end first into such tube;

said sidewall including at least one handle means whereby said golf bag may be hand-carried; and

cover means including a cover and securement means for releasably securing the cover to the sidewall in domed enclosing relation to said deck.

4,383,564

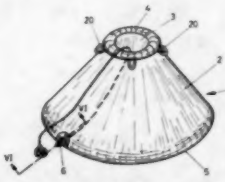
COLLAPSIBLE, PORTABLE, OPEN-TOP CONTAINER FOR LIQUID, PREFERABLY

Karl H. Hole, Heming Vei 4, Oslo 3, Norway

Filed Dec. 1, 1980, Ser. No. 211,795

Int. Cl.³ B65D *33/38, 30/28*

U.S. Cl. 150—0.5 **11 Claims**



1. A collapsible, portable, open-top container for liquids, such as water, having a bottom and side walls made of a flexible, high-tensile-strength material, and a ring-shaped float body disposed along the upper edge portion of the side walls, said float body in its entirety being disposed inwardly of the circumference of said bottom, the container being such that when the container is filled, the side walls converge toward the top such that the ratio between the diameter of the opening and the diameter of the bottom is in the range of 1:2 to 1:5, preferably 1:3, and the ratio between the diameter of the opening and the height of the container is in the range of 1:1 to 1:8, preferably 1:1.6, at least two pipe connections are provided in a lower edge portion of said side walls, one projecting outwardly and

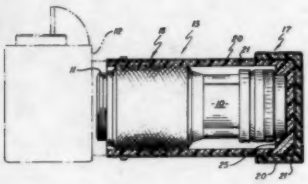
one projecting inwardly, and said pipe connections having oppositely-operating check valves.

4,383,565

LENS PROTECTION CASE

David A. Denmat, 316 Upper Tilden Ave., New Hartford, N.Y. 13413

Filed Feb. 2, 1981, Ser. No. 230,513
Int. Cl.³ B65D *85/38*
U.S. Cl. 150—52 J 12 Claims



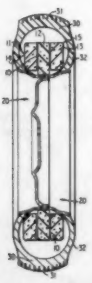
1. Apparatus for protecting a camera lens when the lens is either mounted upon the camera body or removed therefrom including a cylindrical housing which is closed at one end by an end wall and open at the other end so that a lens can be passed therein, said housing containing an outer shell and a soft resilient inner liner for protectively contacting the outer surface of a lens barrel contained therein, an end cap that also contains an outer shell and a soft resilient inner liner, and having an inside diameter that is slightly less than the outside diameter of the housing shell to permit the cap to be positioned over the closed end of the housing to provide added protection when the lens is mounted upon the camera and to be positioned over the open end of the housing to totally enclose the lens when said lens is removed from the camera.

4,383,566

TIRES

Timothy J. Houghton, Royal Oak Farm, P.O. Box 167, CC942, Betws Y Coed Jeddah, North Wales Saudi Arabia

Continuation-in-part of Ser. No. 966,243, Dec. 4, 1978, abandoned. This application May 20, 1980, Ser. No. 151,555
Int. Cl.³ B60C *17/00*
U.S. Cl. 152—158 7 Claims



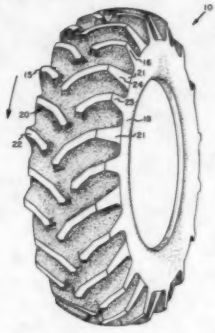
1. A pneumatic tire insert of separate side by side strips each strip comprised at least in part of closed cell resilient material constructed and dimensioned to fit ring-like about and in contact with a wheel rim within said tire and said insert, in an unexpanded and unpressurized state filling 10 to 25% less than the whole interior cross-sectional volume of said tire but supporting said tire against total collapse when deflated, said insert being thermally expandable in subsequent running with said tire deflated due to flexing of the tire and the insert, wherein the insert before expansion has a size and resilience sufficient to support said tire under its normal load to an extent equivalent to or greater than minimum non-damaging inflation.

4,383,567

PNEUMATIC TRACTOR TIRE

George T. Crum, Uniontown; Charles D. Guster, Jr., Massillon, and Myron M. McClain, North Canton, all of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Feb. 5, 1982, Ser. No. 346,356
Int. Cl.³ B60C *11/08*
U.S. Cl. 152—209 B 8 Claims



1. A pneumatic tire for tractors and like vehicles, wherein said tire has a tread portion, the improvement in said tread portion comprising:

(a) two sets of primary lugs, each lug of a first set of primary lugs having first, second, and third portions, said first portion beginning at one lateral edge of the tread and extending to an inner end located about 25 to 35 percent of the axial distance from said lateral edge to the mid-circumferential centerplane of the tire at an angle of between 60 and 74 degrees with respect to said mid-circumferential centerplane, said second portion extending from the inner end of said first portion to an inner end located between 80 to 95 percent of the axial distance from said lateral edge to said mid-circumferential centerplane at an angle of between 52 and 63 degrees with respect to said mid-circumferential centerplane, said third portion extending from the inner end of said second portion to at least said mid-circumferential centerplane at an angle of between 35 and 45 degrees with respect to said mid-circumferential centerplane;

(i) each lug of the second set of primary lugs being similar to said first set of primary lugs but opposite in hand, having a beginning at the other lateral edge of the tread and being offset circumferentially of said tire with respect to the next adjacent pair of primary lugs in said first set of primary lugs so that the inner end of the third portion of each of said primary lugs is spaced at a distance of between 25 and 35 percent of the tread width from the lagging edge of the second portion of a primary lug of the other set of primary lugs; and

(b) two sets of secondary lugs, each lug of a first set of secondary lugs having first and second portions, said first portion beginning at the same lateral edge of the tread as the first portions of the lugs of said first set of primary lugs and extending to an inner end located about 25 to 35 percent of the axial distance from said lateral edge to said mid-circumferential centerplane at an angle of between 65 and 80 degrees with respect to said mid-circumferential centerplane, said second portion extending from the inner end of said first portion to an inner end located about 60 to 72 percent of the axial distance from said tread edge to said mid-circumferential centerplane at an angle of be-

tween 40 to 60 degrees with respect to said mid-circumferential centerplane and being disposed one only between each adjacent pair of primary lugs in the first set of primary lugs;

(i) each lug of the second set of secondary lugs being similar to the first set of said secondary lugs, but opposite in hand, and having a beginning at said other lateral edge of the tread.

4,383,568

TREAD CONFIGURATION FOR MOTOR VEHICLE TIRES

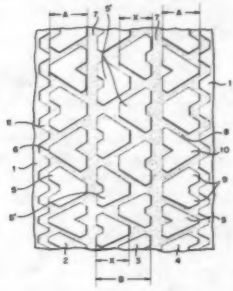
Henner Pieper, Langenhagen, Fed. Rep. of Germany, assignor to Continental Gummi-Werke Aktiengesellschaft, Hanover, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 177,858, Aug. 14, 1980, abandoned. This application Apr. 2, 1982, Ser. No. 365,030

Claims priority, application Fed. Rep. of Germany, Aug. 18, 1979, 7923582[U]

Int. Cl.³ B60C *11/00*

U.S. Cl. 152—209 R **4 Claims**



1. A tread configuration for motor vehicle tires, especially spare tires comprising three peripheral rows of essentially V-shaped blocks, each block of which has a point and two ends, with the points of successive blocks in a given row, as seen in the peripheral direction of the tire, alternately pointing in opposite directions transverse to the peripheral direction of the tire, said rows of blocks being respectively separated from one another by linearly extending peripheral grooves, with the width of the two axially outer rows of blocks essentially corresponding to the axial dimension of each of said blocks individually in the respective outer row, while successive blocks of the middle row of blocks are laterally offset relative to each other in such a way that the collective width of said middle row is approximately 1.3 to 1.8 times the axial dimension of each of said blocks individually in the respective middle row and the collective width of the middle row is larger than the outer rows.

4,383,569

FOLDING CLOSURE

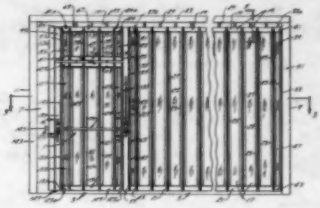
Henri M. R. Labelle, 50 Westmooreland Ave., Cornwall, Ontario, Canada

Continuation-in-part of Ser. No. 127,637, Mar. 6, 1980. This application Mar. 17, 1981, Ser. No. 244,663

Int. Cl.³ E06B *3/48*

U.S. Cl. 160—116 **4 Claims**

1. A folding closure having a plurality of tall, narrow first panels, pivot means connecting vertical sides of adjacent first panels together; an emergency folding foor in the folding closure which door had a height less than the height of the closure, the door having a plurality of tall, narrow second panels and pivot means connecting vertical sides of adjacent second panels together; a folding top closure section in the folding closure above the folding door, the top closure section having a plurality of short, narrow third panels and pivot



means connecting adjacent vertical sides of adjacent third panels together; and means detachably connecting the folding door and the folding top closure section together.

4,383,570

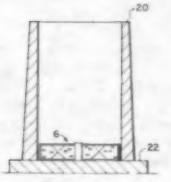
METHOD OF POURING STEEL INTO A CONTAINER

Herbert A. White, Churchill Borough, Pa., assignor to American General Supply Company, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 194,372, Oct. 6, 1980, Pat. No. 4,354,659. This application Aug. 12, 1982, Ser. No. 407,635

Int. Cl.³ B22D *7/12, 27/00*

U.S. Cl. 164—57.1 **6 Claims**



1. The method of pouring steel into a container having a bottom of substantial size and height which comprises:

providing a light weight tin free steel mat made from a plurality of thin crumbled sheets of tin free steel each having closely spaced holes therein throughout substantially all its surface and said sheets being arranged in a plurality of layers arranged to define a honeycombed spongelike structure of considerable thickness defining a plurality of discontinuous voids, and substantially flat individual thin sheets arranged on the top and bottom of said spongelike structure to form an assembly, said top and bottom sheets being made from a metal compatible with molten steel, none of said discontinuous voids extending from the top sheet to the bottom sheet,

placing said mat on top of said bottom, and

pouring molten steel in a stream of less cross-section than that of said mat on top of the mat with the honeycombed structure absorbing the force of the molten steel while it melts and is absorbed into the molten steel in the container.

4,383,571

DUMMY BAR FOR CONTINUOUS CASTING EQUIPMENT

David W. Frantz, Allen Park, Mich., and Louis Lazaretti, Baddeo, Pa., assignors to Gladwin Corporation, Detroit, Mich.

Filed Mar. 16, 1981, Ser. No. 244,253

Int. Cl.³ B22D *11/08*

U.S. Cl. 164—446 **9 Claims**

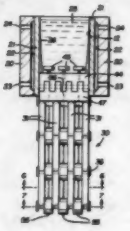
1. A bendable dummy bar for supporting a closure plug within a continuous casting mold and for withdrawing the plug, with the lead end of the continuous cast strand joined to

the plug, downwardly from the mold and guiding it in a curved path, comprising:

a row of numerous, rigid, elongated links arranged end to end, with opposite ends of each length having socket forming notches opening endwise of the link;

a transversely arrnaged pin positioned between adjacent ends of each pair of adjacent links and pivotally seated within their sockets so that the links may pivot to a limited degree about the pins;

an elongated, flexible cable extending alongside of, and parallel to, the row of links and extending through diametrically oriented openings formed through each of the pins, with the cable extending the length of the row;



means securing ends of the cable to the opposite ends of the row, with the cable being tightened to apply a compressive force upon the links for keeping the respective link sockets and pins tightly together;

whereby at a bar end portion near the plug, the links may be initially aligned beneath and fastened to the plug to form an upright column-like support for the plug, with said links in substantial axial alignment, and then the bar portion may be endwise moved along a curved path, wherein the links pivot about their pins a limited amount to correspondingly guide the plug and strand along said curved path.

4,383,572

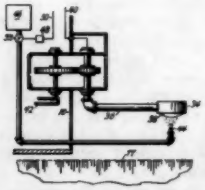
FIRE DETECTION CLEANING ARRANGEMENT

Kenneth O. Bellows, Wellsville, N.Y., assignor to The Air Preheater Company, Inc., Wellsville, N.Y.

Filed Dec. 7, 1981, Ser. No. 328,051

Int. Cl.³ F28D *19/00*; **F28G** *15/00*

U.S. Cl. 165—5 **10 Claims**



1. Heat exchange apparatus including a housing having inlet and outlet ducts for a heating fluid and for a fluid to be heated, a cylindrical rotor of heat absorbent material in said housing mounted for rotation about the central axis of the rotor, means for rotating the rotor to alternately subject the heat absorbent material thereof to the heating fluid and to the fluid to be heated, infrared ray detecting means including a sensor having a lens that confronts the heat absorbent material of the rotor, a support arm supporting the sensor, means moving the sensor support arm along a path in a plane parallel to and adjacent the end of the rotor, a source of pressurized cleaning fluid, fixed nozzle means adapted to confront said lens as the sensor traverses a portion of its path adjacent the end of the rotor, and means for exhausting a blast of cleaning fluid from said source through the fixed nozzle to impinge upon the surface of the lens as it confronts the nozzle whereby dust deposits on said lens are removed therefrom.

4,383,573

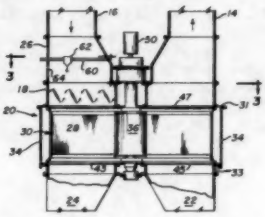
ROTARY REGENERATIVE AIR HEATER

Steven P. Wincze, Windsor, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Jan. 28, 1982, Ser. No. 343,142

Int. Cl.³ F28D *19/04*

U.S. Cl. 165—7 **2 Claims**



1. A rotary regenerative air heater assembly for receiving hot flue gas from a furnace and transferring heat therefrom to air being supplied to the furnace comprising: a vertical rotor post; a rotor disposed the rotor post and formed of a plurality of sector shaped compartments extending radially from the rotor post; a plurality of element baskets carrying heat absorbent material disposed within the rotor; a stationary housing surrounding the rotor and having inlet and outlet openings at both ends thereof for directing separated flows of air and gas through the heat absorbent material; means for rotating the rotor so as to align the heat absorbent material alternately with the heating gas and the air to be heated; damper means disposed across and mounted atop the gas inlet at the top of the housing and having opening therein for providing access to the heat absorbent material with the rotor; a toggle duct inter-connecting the furnace with the damper means mounted atop the gas inlet; track means disposed within the toggle duct above the access opening in the damper means for supporting and guiding a hoist; and an access opening in the wall of the toggle duct adjacent the track means through which a hoist may be mounted upon the track means to lift element baskets from the rotor through the access opening in the gas damper to a position adjacent the access opening in the wall of the toggle duct for removal of the element basket therethrough.

4,383,574

AIR CONDITIONING SYSTEM FOR AUTOMOTIVE VEHICLES HAVING DISCHARGE AIR TEMPERATURE CONTROL FUNCTION

Hisato Yoshioka, Konan, Japan, assignor to Diesel Kiki Co., Ltd., Tokyo, Japan

Filed Dec. 12, 1980, Ser. No. 215,754

Claims priority, application Japan, Dec. 29, 1979, 54-182504[U]

Int. Cl.³ F25B *27/00*; **B60H** *3/00*

U.S. Cl. 165—43 **5 Claims**

1. An air conditioning system for automotive vehicles, which comprises:

a casing having an air passage formed therewithin;

an evaporator core arranged in said air passage;

a compressor operatively connected to said evaporator core;

a heater core arranged at a location downstream of said evaporator core in said air passage;

a passage bypassing said heater core;

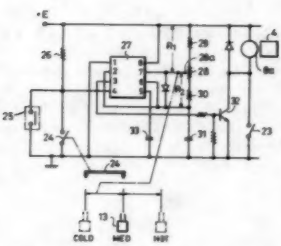
a pivotally mounted air-mix damper for guiding an air flow from said evaporator core, through said by-pass passage

alone at a first angular position thereof, through said heater core alone at a second angular position thereof, and through both said by-pass passage and said heater core at a position between said first angular position and said second angular position;

a temperature control lever disposed for pivoting between a first extreme position thereof and a second extreme position thereof with a predetermined intermediate position provided between said first and second extreme positions, temperature control lever being operatively connected to said air-mix damper;

said air-mix damper being adapted to be pivotally displaced between said first angular position and said second angular position as said temperature control lever is moved between said predetermined intermediate position and said first extreme position, and said air-mix damper being adapted to be always held at said first angular position when said temperature control lever is moved between said predetermined position and said second extreme position; and

compressor-operation control means operatively connected to said temperature control lever for controlling the operation of said compressor, said compressor-operation control means being adapted to be kept inoperative to keep said compressor at rest when said temperature control



lever is positioned between said predetermined intermediate position and said first extreme position, and said compressor-operation control means being adapted to vary the rate of operation of said compressor with movement of said temperature control lever between said predetermined intermediate position and said second extreme position, said compressor-operation control means comprising:

a magnetic clutch having a solenoid and coupled with said compressor;

an output transistor coupled to said solenoid for energizing said solenoid;

a timer formed by an integrated circuit for supplying pulses to said output transistor for turning said output transistor on or off;

a resetting switch operatively connected to said timer and to said temperature control lever for rendering said timer inoperative when said temperature control lever is positioned on the side of said first extreme position with respect to said predetermined intermediate position; and

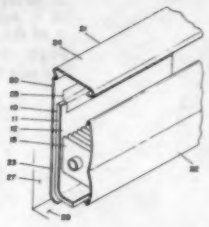
a time constant circuit operatively connected to said temperature control lever for varying the duty factor of pulses from said timer with movement of said temperature control lever between said predetermined intermediate position and said second extreme position.

4,383,575

BASEBOARD HEAT REFLECTOR

Louis G. Bobrowski, Berlin, Conn., assignor to The Stanley Works, New Britain, Conn.

Filed May 4, 1981, Ser. No. 260,309
Int. Cl.³ F24D *19/02*
U.S. Cl. 165—55 **6 Claims**



1. In a heat reflector and insulator for a baseboard heater of the kind including an elongate heating element and an enclosure at least partially enclosing the heating element; the improvement including an elongate strip of multilayer material for positioning behind and below the heating element, said strip having a width corresponding to a distance above the heating element location in the enclosure plus at least a portion of the width of enclosure below the heating element, said strip being sufficiently flexible to wrap partly around the heating element behind and below the heating element, said strip having a layer of foam insulating material for location facing away from the heating element and a layer of reflective foil for location facing the heating element and for reflecting heat therefrom upwards and outward towards a room to be heated, said foam layer serving to at least partly prevent passage of heat to adjacent wall and floor behind and below the heating element.

4,383,576

PROCESS OF ACCUMULATION AND RESTITUTION OF HEAT

Alain Bricard, Grenoble; Jacques Chabanne, Fontaine, and Bernard Duret, Grenoble, all of France, assignors to Commissariat a l'Energie Atomique, Paris, France

Filed Jul. 25, 1980, Ser. No. 172,242
Claims priority, application France, Aug. 2, 1979, 79 19866
Int. Cl.³ F28D *19/00*
U.S. Cl. 165—104.17 **2 Claims**

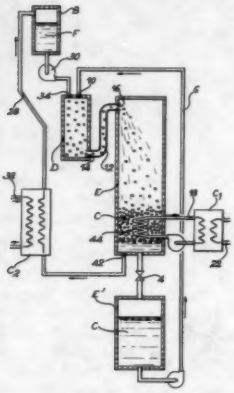
1. A heat accumulator with latent heat of fusion for performing a process of accumulation and restitution of heat including the steps of storing heat, mainly in the form of latent heat of fusion, as required, by causing a hot heat-transfer fluid to circulate in the lower part of a bed of material in grain form with considerable latent heat of fusion, the temperature of the fluid being higher than the melting point of the material which melts under the effect of the additional calories from the fluid, and of restituting, as required, heat stored by the material as a liquid, by circulating and bringing into contact the material and the fluid, the temperature of the fluid being lower than the melting point of the material, with the result that the material yields heat to the fluid on solidifying in the form of grains before being stored in a tank for storing the material in grain form, the heat accumulator comprising:

a first storage tank adapted to contain in its lower part a bed of the said material in grain form, means for circulating said fluid at said higher temperature in the lower part of the tank, means for circulating in direct contact the liquid material and the fluid in a discharge exchanger communicating with the upper part of said tank, and means for heating and cooling the fluid, the accumulator further comprising a second storage tank adapted to contain the

liquid material, the second storage tank communicating with the said upper part of the first storage tank via a valve, the accumulator further comprising:

a pumping circuit connecting the second storage tank to an opening formed in an upper part of said discharge exchanger,

a charging circuit constituting a secondary circuit of a heat exchanger, and of which a part is disposed inside the storage tank, in the lower part of the bed of material contained in the latter, over a height corresponding to a fraction of the maximum height of said bed,



a discharge circuit constituting a primary circuit of a heat exchanger and of which a part is constituted by the discharge exchanger,

a circuit for transporting the material in grain form formed in the discharge exchanger, the said circuit for transporting comprising at least one common part with the discharge circuit, connecting an opening formed in the lower part of the discharge exchanger to an opening formed in the upper part of the first storage tank and connecting an opening formed in the lower part of the first storage tank to the discharge exchanger via an expansion vessel, each of said circuits including at least one pump.

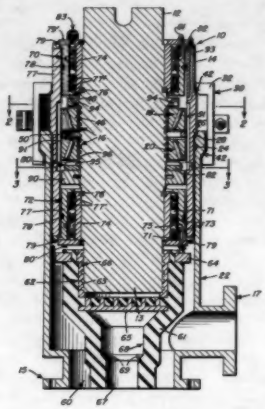
4,383,577

ROTATING HEAD FOR AIR, GAS AND MUD DRILLING

Alfred B. Pruitt, 4108 S. 35th St., Fort Smith, Ark. 72903

Filed Feb. 10, 1981, Ser. No. 234,447
Int. Cl.³ E21B *3/02*
U.S. Cl. 166—95 **10 Claims**

1. A drilling head for a well bore comprising a stationary bowl, a rotatable head assembly removably fixed in sealed engagement with said bowl, said rotatable head assembly comprising a rotatable barrel, a stationary barrel surrounding the rotatable barrel, a longitudinally extending chamber provided between the stationary and rotatable barrels for receiving lubricating and cooling fluid, bearing means having inner and outer races interposed between the stationary and rotatable barrels and disposed within the chamber, upper and lower packing means generally carried by the stationary barrel and providing a seal for the chamber to substantially preclude leakage of fluid into or out of the chamber and means generally disposed within said chamber for forced circulation of lubricating and cooling fluid upwardly between said inner race and said rotatable barrel and downwardly between said outer race and said stationary barrel and through said bearing means said means for forced circulation of lubricating and cooling fluid



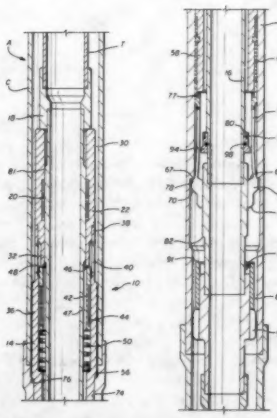
being effected by pump means operated by said rotatable barrel.

4,383,578

CASING BORE RECEPTACLE WITH FLUID CHECK VALVE

John R. Baker, Houston, Tex., assignor to Baker International Corporation, Orange, Calif.

Filed Jul. 2, 1981, Ser. No. 279,921
Int. Cl.³ E21B *33/126, 34/08*
U.S. Cl. 166—373 **28 Claims**



27. A method of sealing the annulus between a fluid transmission conduit and an exterior conduit in a subterranean well to prevent the flow of produced hydrocarbons up through the annulus and of providing for the injection of a fluid treatment solution through said annulus and the circulation of said solution with produced hydrocarbons through said fluid transmission conduit to the top of said well, comprising the steps of:

releasably attaching an annular packoff member having inner and outer seals, a radially expandable latch and a check valve permitting only downward fluid flow around a mandrel section;

incorporating said mandrel section having a flow passage extending therethrough on said fluid transmission conduit;

lowering said fluid transmission into said exterior conduit until said packoff member abuts said exterior conduit to prevent further downward movement of said packoff member relative to said exterior conduit and said outer seals establish sealing integrity with said exterior conduit;

moving said fluid transmission conduit downward to shear an interconnection between said radially expandable latch and said mandrel; and

camming said radially expandable latch radially outward into engagement with said exterior conduit by further downward movement of said fluid transmission conduit.

4,383,579

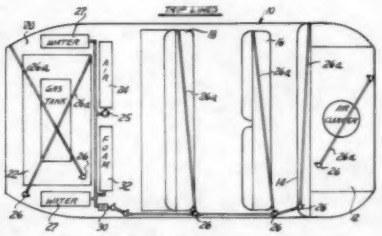
SHOCK ACTUATED FIRE PREVENTION SYSTEM FOR AUTOMOBILES

Guerdon M. Monk, G 8314 Davison Rd., Davison, Mich. 48423

Continuation-in-part of Ser. No. 152,330, May 22, 1980, abandoned. This application May 18, 1982, Ser. No. 379,464

Int. Cl.³ A62C *35/12*

U.S. Cl. 169—62 **4 Claims**



1. A fire prevention system for a vehicle divided into a plurality of compartments and zones, comprising:

a trip valve operatively mounted in each of said zones and actuable responsive to shock received in one of said compartments and zones;

a reservoir of water;

a reservoir of high expanding foam concentrate;

a pressurized vessel operatively connected to and controlling the mixture of water and concentrate from said reservoirs;

a mixing valve operative to receive and mix a flow output from said two reservoirs responsive to the actuation of said trip valves and the release of air pressure from said vessel;

a plurality of conduits each communicating between said mixing valve and different ones of said zones; said trip value releasing pressurized air which is initially stored in the conduits;

and a plurality of outlet nozzles, each operatively connected to one of said conduits and mounted in a different one of said zones for providing output of high expanding foam to said zones responsive to shock in any one of said zones, said high expanding foam concentrate including a plurality of non-flammable ingredients and a propanol solvent such that it can be breathed and at the same time protect passengers from flames.

4,383,580

AGRICULTURAL IMPLEMENTS

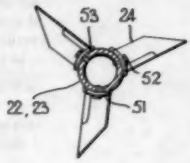
Paul M. Huxford, Jolly Rd. Galatea, R.D. 1, Murupara, New Zealand

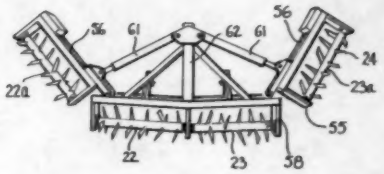
Filed Dec. 18, 1980, Ser. No. 217,828

Claims priority, application New Zealand, Dec. 20, 1979, 192473; Apr. 18, 1980, 193480; May 19, 1980, 193768

Int. Cl.³ A01B *45/02*

U.S. Cl. 172—21 **11 Claims**





1. A ground driven agricultural implement comprising a frame constructed and arranged for mounting on a prime mover to be drawn thereby in use in the direction of travel thereof, a plurality of shafts rotatably mounted on said frame with their axes at an angle of 80°–87.5° with respect to said direction of travel, and a plurality of substantially planar ground cutting and penetrating members mounted on each of said shafts with the plane of each cutting member at an angle between 82.5°–87.5° with respect to the axis of the respective shaft extending between said cutting member and the outer end of said respective shaft, so that said cutting members have substantially edgewise engagement only with the ground, each cutting member having a peripheral configuration so that when viewed along the axis of the respective shaft on which it is mounted the radially outermost part is narrower than the root thereof when it is mounted on said shaft, said angle of said axes of said shafts with respect to said direction of travel being such that contact between said cutting members and the ground when said implement is drawn by the prime mover rotatably drives each shaft.

4,383,581

TOOL FOR DRILLING BOREHOLES

Jury F. Shalashov, ulitsa Omskaya, 61, kv. 10; Vladimir D. Butkin, ulitsa Klary Tsetkin, 30"A", kv. 77, both of Chelyabinsk, and Vadim D. Petukhov, ulitsa Russkaya, 25, kv. 197, Novosibirsk, all of U.S.S.R.

Filed Mar. 16, 1981, Ser. No. 244,201

Int. Cl.³ E21C *3/20, 3/24*

U.S. Cl. 173—16 **8 Claims**

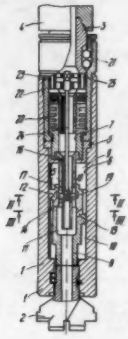
1. A tool for cutting percussive rotary drilling of boreholes, comprising: a hollow casing; a bit secured in said casing for axially moving relative thereto and connected to said casing for combined positive rotation; a partition wall dividing the interior of said hollow casing into a working space defined on the side of said bit and a supply space,

an opening of said partition wall through which said working space and said supply space communicate with one another;

a source of a fluid under pressure in permanent communication with said supply space; a hammer piston installed in said working space for reciprocations and for cooperation with said bit for imparting impact impulses thereto, said hammer piston dividing said working space into a workstroke chamber and a return stroke chamber;

distribution means provided in said casing for alternately connecting said workstroke and return stroke chambers, respectively, via said supply space, to said source of a fluid under pressure for causing reciprocations of said hammer piston;

controlled throttling means in permanent communication with said distribution means, said throttling means being



installed for setting said distributing means in two limit positions so that in the first position there is permanent communication of said supply space with atmosphere so as to provide for a partial supply of a fluid for reciprocations of said hammer piston at minimum kinetic energy and in the second position said throttling means are completely closed so as to provide for the full supply of a fluid to said workstroke and return stroke chambers through said distribution means for reciprocations of said hammer piston at maximum kinetic energy; and

control means coupled to said bit and to said controlled throttling means for setting them to the first position when said bit encounters a soft rock and to the second position when said bit encounters a hard rock.

4,383,582

BOUNCER TYPE PILE DRIVER

Stephen V. Chelminski, West Redding, Conn., assignor to Bolt Technology Corporation, Norwalk, Conn.

Division of Ser. No. 62,420, Jul. 31, 1979. This application Apr. 15, 1981, Ser. No. 254,445

Int. Cl.³ E02D 7/10

U.S. Cl. 173—131 **25 Claims**

1. In a bouncer thruster of the type having a cylinder wall defining a cylinder, a massive piston weight movable up and down within said cylinder, and a bottom assembly associated with said cylinder below said piston weight and adapted to be coupled in thrust-transmitting relationship to a pile to be driven, said piston weight and bottom assembly defining a pressurized gas bounce chamber within said cylinder, that further invention comprising:

said piston weight having a narrowed waist defining an annular pressurized gas storage chamber located between said cylinder wall and the waist of said piston,

said waist of said piston weight being between upper and lower piston portions which are in gas-sealing sliding engagement with said cylinder wall,

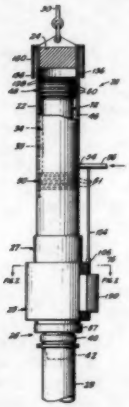
means for feeding pressurized gas into said annular storage chamber as said piston weight moves up and down for temporarily storing pressurized gas therein,

gas bypass means associated with said cylinder wall for passing pressurized gas from said annular storage chamber past said lower piston portion into said bounce chamber as said piston weight moves donwardly through a predetermined range toward said bottom assembly,

said gas bypass means becoming blocked by said lower piston portion during the descent of said lower piston portion below said range and before the descending piston weight comes into contact with said bottom assembly for trapping pressurized gas between said descending piston weight and said bottom assembly for preventing said descending piston weight from striking said bottom assembly,

said gas bypass means also passing pressurized gas from said annular storage chamber past said lower piston portion into said cylinder as said piston weight ascends through said predetermined range for providing additional pressurized gas beneath the ascending piston weight,

exhaust means for releasing expanded gas from said cylinder



from beneath said piston weight after said piston weight has moved upwardly,

whereby as said piston weight descends toward said bottom assembly it passes through said predetermined range and said bypass means passes pressurized gas previously stored in said annular storage chamber through said bypass means into the bounce chamber and the pressurized gas in said bounce chamber thereafter becomes trapped and further compressed below the descending piston weight,

thereby providing a relatively high pressure in said bounce chamber for exerting a powerful downward force on said bottom assembly for quietly driving a pile and for bouncing said piston weight upwardly for repeating the cycle of operation, and

whereby as said piston weight is ascending through said predetermined range, said bypass means passes said additional pressurized gas from said annular storage chamber into the cylinder beneath the ascending piston weight for boosting the weight up relatively high in the cylinder.

4,383,583

SOIL SAMPLING TOOL

Clinton F. Baker, Rte. #4, Fredonia, Kans. 66736

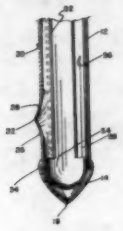
Filed Feb. 8, 1982, Ser. No. 346,409

Int. Cl.³ E21B 7/26

U.S. Cl. 175—20 **20 Claims**

1. A specimen collector comprising an elongated hollow cylindrical tube having a closed lower end adapted to penetrate a mass of material of which a specimen is desired, said tube having a lateral inlet opening adjacent its lower end, said

tube being provided with a cutter means adjacent said lateral opening for cutting and directing into the tube through said lateral inlet opening material which may be penetrated by the tube in response to a predetermined movement of the tube relative to such material, and an elongated ladle disposed in the tube comprising a cup fixed to an upstanding shank, said cup



having free vertical running clearance in the tube between positions above and below the inlet opening and a configuration such that its periphery has a horizontal projection corresponding substantially to the transverse section of the interior of the tube, whereby the ladle and collected specimen in the cup can be removed from the tube.

4,383,584

SEALED LOAD CELL CONSTRUCTION

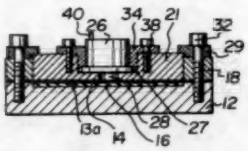
George J. Dyck, Saskatoon, Canada, assignor to International Road Dynamics Inc., Saskatchewan, Canada

Continuation-in-part of Ser. No. 128,361, Mar. 7, 1980. This application Jun. 26, 1981, Ser. No. 277,704

The portion of the term of this patent subsequent to Nov. 23, 1999, has been disclaimed.

Int. Cl.³ G01G 5/04

U.S. Cl. 177—208 24 Claims



1. A load measuring device operating with a small amount of vertical travel comprising:

(a) a base;

(b) a thin sealed, fixed volume reservoir forming the lower portion of said base;

(c) a load-transmitting material in the form of a non-compressible fluid or a soft rubber in said thin reservoir;

(d) a flexible diaphragm sealing said thin reservoir and being in direct contact with said load-transmitting material in said reservoir;

(e) means for applying a load directly to said diaphragm; and

(f) a transducer including an integral diaphragm at the base thereof held with such integral diaphragm in direct contact with said flexible diaphragm to provide a reading proportional to the value of said load.

4,383,585

WEIGHING DEVICE WITH A VIBRATING STRING

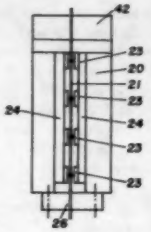
Harry Gaus, Bensheim, Fed. Rep. of Germany, assignor to Postalia GmbH, Offenbach am Main, Fed. Rep. of Germany

Filed May 12, 1981, Ser. No. 262,797

Claims priority, application Fed. Rep. of Germany, Jun. 20, 1980, 3023565

Int. Cl.³ G01G 3/14

U.S. Cl. 177—210 FP 8 Claims



1. Weighing device, comprising a load table for supporting a load, a parallel motion system formed of transverse links for moving said load table, a vertical rod for supporting a load on said load table, a cross piece, a vibrating string being suspended from said vertical rod and said cross piece, and four magnet systems being disposed on said vertical rod for exciting said string to vibrations at higher frequency.

4,383,586

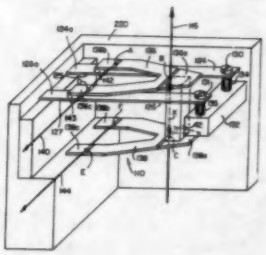
ADJUSTABLE LINKAGE

Shih-Ying Lee, Lincoln, Mass., assignor to Setra Systems, Inc., Natick, Mass.

Filed May 19, 1981, Ser. No. 265,089

Int. Cl.³ G01G 3/08, 21/24; E04G 3/00

U.S. Cl. 177—229 5 Claims



1. Linkage for constraining motion of a reference member to be parallel to a first reference axis, said first reference axis being fixed with respect to a support member, comprising:

first and second elongated flexure members, said first and second flexure members having a flexure near one end, said one end fixedly coupled to said support member, said first and second flexure members having their other ends adjustably coupled to said support member, whereby said other ends may be selectively positioned in the direction of said first reference axis,

first and second V-shaped flexure elements, each flexure element having a vertex end portion and flexure portions extending therefrom and terminating at first and second distal end portions,

wherein said vertex end portions of said first and second V-shaped flexure elements are fixedly coupled to said reference member at a respective one of points B and C,

said points B and C being separated by distance X in the direction of said first reference axis,

wherein the first and second distal ends of said first V-shaped element are fixedly coupled to a respective one of said elongated flexure elements at a respective one of coupling points A and D, said points A and D being between said flexures at said one ends and said other ends of said elongated flexure elements, and lying along a second reference axis nominally perpendicular to said first reference axis,

wherein the first and second distal ends of said second V-shaped element are fixedly coupled to said support member at a respective one of points E and F, said points E and F lying on a third reference axis, said third reference axis perpendicular to said first reference axis,

wherein said adjustable couplings are adjustable whereby the distance between points A and F in the direction of said first reference axis equals the distance between points D and E in the direction of said first reference axis and said second reference axis is parallel to said third reference axis and offset therefrom by distance X in the direction of said first reference axis.

4,383,587

RACK STEERING GEAR

Armin Lang, Schwabisch Gmund, Fed. Rep. of Germany, assignor to Zahnradfabrik Friedrichshafen, AG, Friedrichshafen, Fed. Rep. of Germany

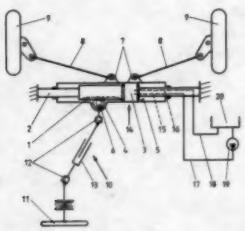
PCT No. PCT/DE80/00102, § 371 Date Mar. 3, 1981, § 102(e) Date Mar. 3, 1981, PCT Pub. No. WO81/00239, PCT Pub. Date Feb. 5, 1981

PCT Filed Jul. 11, 1980, Ser. No. 243,946

Claims priority, application Fed. Rep. of Germany, Jul. 12, 1979, 2928100

Int. Cl.³ B62D *5/10*

U.S. Cl. 180—148 **7 Claims**



7. In a booster steering gear for a vehicle, of the kind having a housing comprising a booster cylinder with a piston therein including a rack movable in said housing by a steering wheel and a control valve operable by rack movement for booster power control, including steering force transmission means comprising steering rod means operable by relative movement between said piston and said booster cylinder for vehicle wheel steering movement;

wherein the improvement comprises said steering rod means having at least one steering rod (8) connected to said housing (4); a piston rod (2) comprising means to be fixed to a vehicle frame; said housing being movable on said fixed piston rod to effect steering by actuation of said steering rod; including means for actuating said rack (1) comprising a pinion (6) carried by said housing and means for rotating said pinion by a steering wheel (11) comprising universally jointed telescopically related members;

wherein said rack (1) is slidable on said piston rod (2) and means effecting limited movement relative thereto in either direction for actuation of said control valve.

4,383,588

VEHICLE WHEEL MOUNTING ASSEMBLY

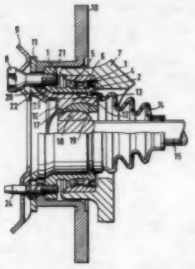
Werner Krude, Siegburg-Kaldauen, Fed. Rep. of Germany, assignor to Uni-Cardan Aktiengesellschaft, Siegburg, Fed. Rep. of Germany

Filed Feb. 26, 1981, Ser. No. 238,447

Claims priority, application Fed. Rep. of Germany, Mar. 20, 1980, 3010726

Int. Cl.³ B60K *17/030*

U.S. Cl. 180—70R **2 Claims**



1. An assembly for mounting a vehicle wheel on a vehicle including rotary joint means and wheel bearing means, said assembly comprising, in combination:

an outer bearing ring of said wheel bearing means affixed with said vehicle;

an inner bearing ring of said wheel bearing means which has nonrotatably connected thereto a wheel hub having threaded holes for receiving studs for mounting said vehicle wheel upon said hub;

an intermediate flange located to be clamped between said wheel hub and said vehicle wheel, said intermediate flange being provided with apertures for receiving said studs and being connected with a brake disc of said assembly;

an outer joint body of said rotary joint means having an outer circumference which is received in an opening of said inner bearing ring;

said outer joint body having on a side thereof proximate said vehicle wheel an extension formed with an annular outer surface which extends radially from the outermost circumference of said outer joint body with an increasing diameter and an annular inner surface which extends radially with an increasing diameter from a side thereof closest to said outer joint body;

said wheel hub having a radially inwardly facing annular surface which extends coincidentally with said annular outer surface of said outer joint body;

said intermediate flange having on a side thereof facing said outer joint body an annular outer surface extending coincidentally with said annular inner surface of said extension.

4,383,589

PNEUMATIC DRIVE SYSTEM FOR LAND VEHICLES

Hilbert V. Fox, Rte. 1, Box 134, Fayetteville, W. Va. 25840

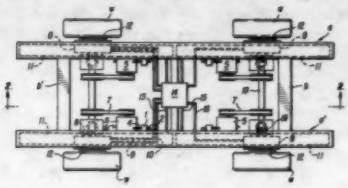
Filed Nov. 14, 1980, Ser. No. 207,024

Int. Cl.³ B60K *9/00*

U.S. Cl. 180—165 **7 Claims**

1. A combined velocity and direction of motion unit for a propulsion device activated by fluid pressure comprising: a housing; a velocity control assembly positioned in one end portion of said housing with inlet and outlet ports in said one end portion; a direction of motion assembly positioned in the other end portion of said housing with first inlet and outlet ports in said other end portion in its upper part and second inlet and outlet ports in the lower part of said other end portion; a

first plurality of conduits between the outlet ports of said one end portion and the first inlet ports of said other end portion;



and a second plurality of conduits between said first plurality of conduits and said second inlet ports in said other end portion.

4,383,590

ARTICULATED TRACTOR HAVING POWER UNITS IN TANDEM

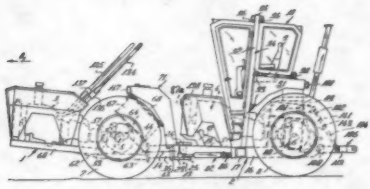
Cornelis van der Lely, 7, Brüschenrain, Zug, Switzerland

Division of Ser. No. 733,163, Oct. 18, 1976, Pat. No. 4,171,028. This application Jan. 31, 1979, Ser. No. 8,046

Claims priority, application Netherlands, Oct. 16, 1975, 7512129

Int. Cl.³ B60K *15/002*

U.S. Cl. 180—314 **5 Claims**



1. A tractor comprising two power units which are, in plan view, mounted one behind the other when the tractor is driving along a straight line which coincides with a vertical plane containing the longitudinal centerline of the tractor, said power units comprising two fuel tanks, one said tank in each said power unit, said tank of the front of said power units being mounted, as seen in plan view, proximate an engine which is included in said front power unit and extending laterally relative to at least one side of said engine whereby said front fuel tank has a width measured in a direction transverse to said straight line which is greater than its length measured along said line and is substantially greater than a further width measured in said transverse direction of said engine of said front power unit, said engine of said front power unit containing the longitudinal centerline of the tractor, each of said power units being supported by a wheel axle with ground engaging wheels on each side of the tractor mounted thereon, each said axle having a width substantially the same as said front fuel tank, the engine included in said rear power unit being located directly behind said engine of said front power unit and both said engines being intersected by said vertical plane, each of said power units being non-pivotally connected to its said corresponding wheel axle, each said engine being secured to an associated frame portion and said frame portions being immovably connected to a said corresponding wheel axle, associated parts of each said engine including cooling means, a clutch, torque conversion means with a differential, with which mechanisms it forms at least part of its corresponding said power unit, each said engine being arranged to drive a separate set of ground engaging wheels, one of said engines being arranged to drive only wheels arranged on the front said axle and the other said engine being arranged to drive only wheels arranged on the rear said axle, the center of gravity of said one power unit, with respect to the intended direction of straight forward travel of the tractor being located between the front said axle and an articulation having a substantially vertical axis located between said power units.

4,383,591

APPARATUS FOR GENERATING P WAVES AND S WAVES

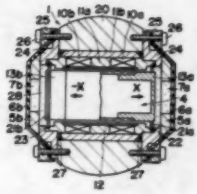
Kimio Ogura, 1413-3 Mimuro, Urawa-shi, Saitama-ken, Japan

Filed Dec. 12, 1980, Ser. No. 215,929

Claims priority, application Japan, Dec. 29, 1979, 54-172279; May 23, 1980, 55-068718; Jun. 6, 1980, 55-076234

Int. Cl.³ G01V *1/40, 1/14*

U.S. Cl. 181—106 **13 Claims**



1. An apparatus for generating P waves and S waves in a ground formation having a mechanism for imparting a force to a bore hole wall of the ground formation through bore hole water, comprising:

a housing;

a rigid body movably mounted in said housing,

said rigid body having a cylindrical magnetic plunger and protection members for protecting said cylindrical magnetic plunger, said protection members being cup shaped and fixed to ends of said cylindrical magnetic plunger;

percussive means for abruptly increasing a water pressure within said bore hole,

said percussive means having planar members of rigid materials,

said planar members being outwardly projectably mounted to opposite portions of said housing with spaces being formed between each of said planar members and opposite ends of said rigid body, said planar members being covered with resilient layers and projectable outwardly against the resilient force of said resilient layers,

said planar members each having an aperture at the central portion thereof to form a space at least between each of said protection members and each of said resilient layers;

an electrically insulating and anticorrosive liquid filled in said space formed between said protection members and said resilient layers, and

a driving means for selectively driving said rigid body into a collision with said planar members of the percussive means to thereby generate P waves when said rigid body collides with said planar members of said percussive means and to thereby generate S waves when said rigid body is driven so as to not collide with said planar members of said percussive means.

4,383,592

ESCAPE LADDER

Kenneth R. Hoffa, 4936 Calver, Dearborn Heights, Mich. 48127

Filed Mar. 25, 1981, Ser. No. 247,359

Int. Cl.³ E06C *9/14, 1/56*

U.S. Cl. 182—70 **9 Claims**

1. An escape ladder comprising a housing adapted to be

secured to an outside wall of a building, a shaft mounted on said housing for rotation between a storage position and an operable position, support means on said shaft and extending generally perpendicular thereto, a series of steps adapted to be stacked on said support means when said shaft is in its storage

position, flexible suspension means connecting the first step in the stack to said shaft and successive steps to each other in spaced relation, and an actuating lever for rotating said shaft from said storage position to said operable position whereby said steps are free to fall by gravity from said support means to form a ladder supported from said shaft.

4,383,593

HYDRAULICALLY AND MECHANICALLY OPERABLE DISC BRAKES

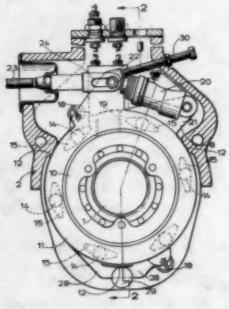
Sigma Micke, Koblenz, Fed. Rep. of Germany, assignor to Lucas Industries Limited, Birmingham, England

Filed Apr. 28, 1981, Ser. No. 258,403

Claims priority, application United Kingdom, May 9, 1980, 8015486

Int. Cl.³ F16D *51/04, 51/06, 55/39, 55/40*

U.S. Cl. 188—71.4 **15 Claims**



1. A disc brake comprising a stationary housing having at least one radial surface, at least one rotatable friction disc in said housing adapted to cooperate with said radial surface to apply said brake, actuating means for urging said friction disc into cooperation with said radial surface, hydraulically operable means for applying said brake, a supply of hydraulic fluid for supplying fluid to said hydraulically operable means, and mechanically operable means for applying said brake for parking or emergency braking, said actuating means incorporating at least one pressure plate and a complementary member, adjacent faces of said pressure plate and said complementary member having complementary oppositely inclined recesses, balls located in said oppositely inclined recesses, and an hydraulic piston and cylinder assembly for urging said pressure plate into engagement with said friction disc, said pressure plate comprising separate inner and outer concentric rings and said friction disc carrying complementary inner and outer regions of friction lining material, said piston and cylinder assembly acting directly on one of said rings, to urge it axially into engagement with a complementary one of said regions of said friction lining material so that said friction disc is urged into cooperation with said radial surface, said recesses being disposed in the other of said rings so that upon relative angular movement between said other ring and said complementary member said other ring moves axially into engagement with the other of said regions of said friction lining material due to a camming effect of said balls as they tend to ride out of said recesses so that said friction disc is urged into cooperation with said radial surface, said piston and cylinder assembly being operated from said supply of hydraulic fluid, and said other ring being angularly movable independently of said one ring by said mechanically operable means.

4,383,594

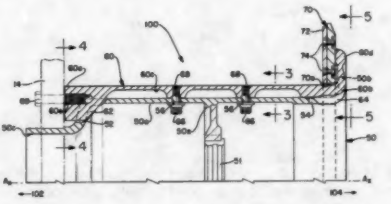
CONFIGURATION FOR A DISK BRAKE TORQUE TUBE ASSEMBLY HAVING REPLACEABLE KEYS AND BACKPLATE

Harold E. Correll, Uniontown, and Richard L. Crossman, Tallmadge, both of Ohio, assignors to Goodyear Aerospace Corporation, Akron, Ohio

Filed Jun. 8, 1981, Ser. No. 271,343

Int. Cl.³ F16D *55/36, 69/04*

U.S. Cl. 188—71.5 **14 Claims**



1. In a brake assembly having an inboard end and an outboard end including a brake housing at the inboard end, an axle, a rotatable member on the axle at the outboard end, and a multi-disk brake stack of alternating rotating and stationary components to provide braking of the rotatable member when subjected to a pressure force on the brake stack, a sub-assembly for stationary mounting with respect to the brake housing to provide torque takeout, keying interconnections, and disk brake backup for the brake stack comprising in combination:

a cylindrically shaped torque tube mounted axially about the axle and having an inboard end as determined by the brake housing and an outboard end as determined by the rotating member, said torque tube having a plurality of spaced-apart slots in the tube about the periphery of each end wherein each slot at the inboard end is axially aligned with a respective slot in the outboard end; and

a plurality of bar-shaped keys mounted axially on the torque tube in spanned relationship between one of said inboard and one of said outboard slots and engaged within said slots to provide keying interconnections for the stationary components of the brake stack and each said key having a radial extension at the outboard end to provide backup for the brake stack when said stack is subjected to a braking pressure force, said sub-assembly affixed to the brake housing by a plurality of bolts, each said bolt mounted in the brake housing and threadably engaged within the inboard end of a respective key.

4,383,595

GAS SPRING HAVING THREE DIFFERENT DAMPING-RATE STAGES

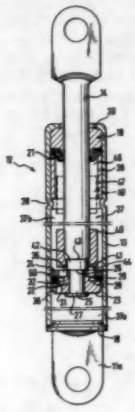
Klaus Schnitzius, Rheinbrohl, Fed. Rep. of Germany, assignor to Stabilus GmbH, Koblenz-Neuendorf, Fed. Rep. of Germany

Filed Aug. 12, 1980, Ser. No. 177,377

Claims priority, application Fed. Rep. of Germany, Aug. 18, 1979, 2933590

Int. Cl.³ F16F 9/49, 9/06

U.S. Cl. 188—281 **19 Claims**



1. In a gas spring including a cylinder member having an axis and two end walls and defining a fluid-tight cavity therein; a piston rod member extending through one end wall in sealed relation thereto for axial movement inward and outward of said cavity between an innermost position and an outermost position; a piston unit carried by said piston rod member internally of said cylinder member and separating said cavity into first and second working chambers; fluid passage means extending through said piston unit for connecting said first and said second working chambers to permit fluid flow therebetween in response to axial movement of said piston rod member and said piston unit; a body of pressurized fluid within said cavity; and means for damping the rate of outward movement of said piston rod member; the improvement comprising:

said damping means comprising first damping valve means and second damping valve means within said fluid passage means; said first damping valve means and said second damping valve means being arranged in series;

both said first damping valve means and said second damping valve means being movable between a closed condition and an open condition, first throttled by-pass means and second throttled by-pass means by-passing said first damping valve means and said second damping valve means, respectively, in the respective closed conditions; said first throttled by-pass means and said second throttled by-pass means being connected in series when said first damping valve means and said second damping valve means are in said respective closed conditions, said first throttled by-pass means having a smaller cross-sectional area than said second throttle by-pass means;

said second damping valve means comprising a piston ring engaging the inner cylindrical face of said cylinder member and being housed in a circumferential groove of said piston unit at an axially intermediate location of said piston unit, said circumferential groove having an invariable axial width larger than the axial width of said piston ring, said piston ring being axially movable within said circumferential groove between a first terminal position remote from said one end wall, in which first terminal position said second damping valve means are in said closed condition and a second terminal position closer to said one end wall, in which second terminal position said second damping valve means are in said open condition, said first terminal position occurring in response to outward movement of said piston rod member and said second terminal position occurrring in response to inward movement of said piston rod member;

said first damping valve means comprising a valve member axially movable with respect to said piston unit to a limited extent, said valve member cooperating with an end face of said piston unit remote from said circumferential groove and directed toward said one end wall so as to open and close, respectively, the exit of a fluid passage extending within said piston unit from said circumferential groove to said end face, said valve member being connected to a damping cylinder, provided within said cavity adjacent said one end wall thereof, as said piston rod member approaches said outermost position and defining therewith a damping chamber, and means defining therewith a damping chamber, and means defining a throttled fluid path between said damping chamber and said second working chamber adjacent said one end wall to further dampen the outward rate of further movement of said piston rod member, said valve member being held in a closing position with respect to said fluid passage when said damping piston enters into said damping cylinder.

4,383,596

CENTRIFUGAL-FORCE FRICTION CLUTCH WITH A TORQUE TRANSMISSION DEPENDENT ON SPEED

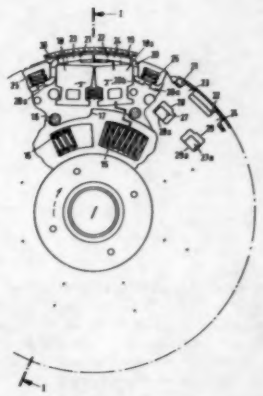
Johann Jäckel, Bühl, Fed. Rep. of Germany, assignor to LuK Lamellen und Kupplungsbau GmbH, Bühl, Fed. Rep. of Germany

Filed Apr. 29, 1980, Ser. No. 144,900

Claims priority, application Fed. Rep. of Germany, Apr. 30, 1979, 2917448

Int. Cl.³ F16D 43/14

U.S. Cl. 192—3.31 **18 Claims**



1. A centrifugal-force friction clutch for transmission of torque to a substantially drum-shaped rotary part, comprising a first rotary component arranged to rotate at a plurality of speeds including a first speed range, a higher second speed range and a highest third speed range; a second rotary component driven by said first component; a plurality of friction shoes mounted in said first component with freedom of movement substantially radially of said components and into engagement with said rotary part under the action of centrifugal force; means for holding said shoes against radial movement into engagement with said rotary part while the speed of said first component is within said first range; weights provided on

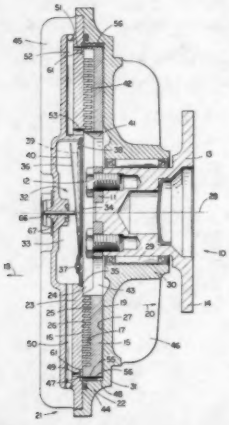
said first component, at least one for each of said shoes and each movable with the respective shoe under the action of centrifugal force substantially radially of said first component and each pivotable relative to the corresponding shoe to change the position of its center of gravity and to urge the shoe into frictional engagement with said rotary part while said first component rotates at a speed which is within said second range so that the torque which said shoes transmit between said rotary part and said first component increases at least substantially proportionally with the increase in speed within said second range and the extent of frictional engagement between said shoes and said rotary part; and means for limiting the extent of movement of said weights with reference to the corresponding shoes not later than when said first component begins to rotate at a speed which is within said third range to bring about a relative reduction of torque transmitted between said shoes and said rotary part so that the torque which is transmitted while said first component rotates at a speed which is within said third range continues to increase but at a rate less than proportionally with the increase in speed within said third range and with the extent of frictional engagement between said rotary part and said shoes.

4,383,597

FLUID SHEAR COUPLING APPARATUS

Everett G. Blair, Plainfield, Ind., assignor to Wallace Murray Corporation, New York, N.Y.

Filed Dec. 22, 1980, Ser. No. 219,227
Int. Cl.³ F16D *35/00, 43/25*
U.S. Cl. 192—58 B **8 Claims**



1. A fluid shear coupling apparatus which comprises: a driving member including a shaft connectable to an external drive source, said driving member including a disc-shaped portion defining several annular ridges and grooves facing in a first axial direction and further defining a first thrust surface facing in a second axial direction opposite the first axial direction;

a driven member defining a working chamber within which said driving member is received, said driven member defining several annular ridges and grooves facing in the second axial direction and received adjacent respective grooves and ridges of said driving member and providing spaced, opposed shear surfaces defining a fluid shear chamber therebetween and cooperable with shear fluid in the fluid shear chamber to transmit torque between said driving member and said driven member, said driven member further defining a second thrust surface facing in the first axial direction and being adjacent and spaced from the first thrust surface defining a thrust chamber therebetween and cooperable with shear fluid in the thrust chamber to transmit axial thrust loads between said driving member and said driven member;

mounting means for mounting said driven member to said driving member and rotatable about a common axis, said mounting means including radial bearings positioned between said driven member and the shaft of said driving member; and

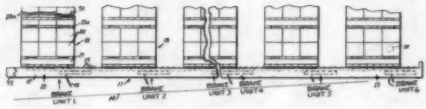
a layer of non-metallic, anti-friction material on at least one of the first and second thrust surfaces of said driving member and said driven member, respectively.

4,383,598

CONVEYOR CONTROL APPARATUS

Frank E. Newman, 6777 Cartilla, Alta Loma, Calif. 91701

Filed Dec. 28, 1981, Ser. No. 335,177
Int. Cl.³ B65G *13/075*
U.S. Cl. 193—35 A **11 Claims**



1. A braking device for a conveyor including a plurality of spaced roller elements for supporting items for movement along said conveyor, comprising:

an elongate brake member under certain of said roller elements,

said brake member having an upper surface extending in a plane for frictional engagement with said roller elements, an actuator,

first pivot means on said actuator pivotally supporting said brake member for movement about a first axis located intermediate the ends of said brake member, and

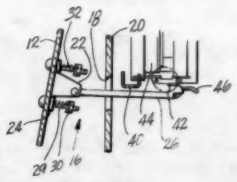
second pivot means supporting said actuator for movement about a second axis located below and to one side of said first axis to move said brake member into braking engagement with said certain roller elements whereby said frictional engagement of said certain roller elements with said brake member forces said brake member into further braking engagement with said certain roller elements.

4,383,599

LATCH FOR COIN OPERATED NEWSRACK

Bradley E. Maxwell, La Habra, Calif., assignor to The Times Mirror Company, Los Angeles, Calif.

Filed Jul. 14, 1980, Ser. No. 168,017
Int. Cl.³ G07F *5/08*
U.S. Cl. 194—54 **10 Claims**



1. A coin operated newsrack comprising:

a compartment adapted to store newspapers;

a door permitting access to the compartment when open and denying access to the compartment when closed;

a latch having mounting flange means normally abutting the surface of the door;

means for spring mounting the latch to the door so as to permit resilient relative movement between the latch and the door when the door is pried, the spring mounting means comprising fasteners each having a shank portion passing through the door and the flange means, the shank portion being substantially longer than the combined thickness of the door and the flange means, first clamping means attached to the shank portion outside the door, second clamping means attached to the shank portion inside the door and spaced from the flange means, and a compression spring for each fastener disposed around the shank portion between the second clamping means and the flange means to bear in compression against both the second clamping means and the flange means, thereby compliantly urging the flange means into abutment with the surface of the door;

means for engaging the latch to prevent the door from opening; and

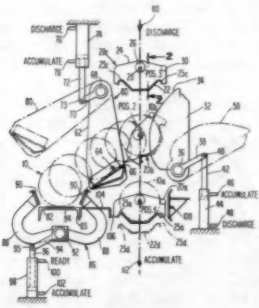
a coin mechanism adapted to disengage the latch from the engaging means so the door can be opened.

4,383,600

ROLL PRODUCT ACCUMULATOR

H. Edward Southerling, Lansdowne, and Charles H. Wills, Broomall, both of Pa., assignors to Scott Paper Company, Philadelphia, Pa.

Filed Apr. 2, 1980, Ser. No. 136,539
Int. Cl.³ B65G 1/00
U.S. Cl. 198—347 **6 Claims**



1. An improved roll accumulator system having (a) means for moving a plurality of pivotally mounted storage carriers along a path by a work station, (b) a retractably mounted discharge pan located between the work station and the carrier path, said discharge pan in an unretracted position extending into the path and interfering with the travel of upright carriers, (c) means for rotating a storage carrier when it is near the discharge pan whereby a roll is caused to roll out of the carrier onto the discharge pan and then onto the work station, and (d) means for retracting the discharge pan out of the path of unrotated carriers, wherein the improvement comprises:

(i) means operable when the discharge pan is retracted, for causing a roll at the work station to be transversely directed into the path of a carrier; and

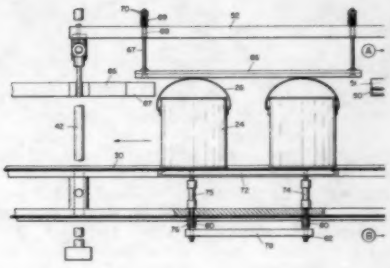
(ii) stationary stop means located adjacent that side of the carrier path that is away from the roll directing means, the stop means deflecting a directed roll so that it falls into a carrier.

4,383,601

APPARATUS FOR SENSING, ORIENTATING AND DELIVERING CANS TO SUBSEQUENT CONVEYOR

Raymond A. Heisler, 657 Dakota Trail, Franklin Lakes, N.J. 07417

Division of Ser. No. 153,069, May 27, 1980, Pat. No. 4,344,522.
This application May 14, 1982, Ser. No. 378,242
Int. Cl.³ B65G 47/24
U.S. Cl. 198—394 **11 Claims**



1. A container turning apparatus adapted to receive containers from a bail-applying mechanism and with associated bail supporting means, receive and maintain the attached bails in a substantially vertical disposed condition, said turning apparatus including:

(a) a conveyor belt adapted to receive and advance the bailed container on its bottom to and through the turning operation;

(b) a sensing means adapted to ascertain the presence of a container on the advancing conveyor belt;

(c) electric eye means on each side of the conveyor and adapted to "read" a spot on each advanced container after the presence of a container has been ascertained;

(d) electronic control to evaluate the "read" spot and determine whether said container is to be turned to a desired position on the conveyor belt;

(e) a turning rail that is raised to engage the lower rim of an advancing container and with said engagement to cause rotation of the advancing container, said turning rail of a length sufficient so that engagement of said rim during advancement of the container on the conveyor belt provides one-half revolution of the container;

(f) means for raising the turning rail in way of the lower rim of an advancing container when the "read" spot indicates, to the electronic control, that the container is to be turned and when the "read" spot indicates that no turning is required the turning rail is not actuated and remains below the conveyor belt;

(g) side guide means for maintaining the advancing container in the desired path on the conveyor belt during transport;

(h) means to engage and support the bail substantially vertical during the turning of the bailed container, and

(i) guide means to reengage an attached bail of an advancing container and maintain this bail in a substantially vertical condition during further advancement to labeling and other operations.

4,383,602

UNSCRAMBLERS FOR BOWL SHAPED ARTICLES

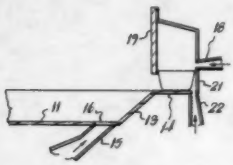
Brian Giles, Nether Alderley, England, assignor to GOM Automation Limited, Gibraltar, England

Filed May 4, 1981, Ser. No. 260,107

Claims priority, application United Kingdom, Mar. 24, 1981, 8109109

Int. Cl.³ B65G 47/14

U.S. Cl. 198—396 6 Claims



1. An unscrambler for lightweight cup- and bowl-shaped articles comprising a reservoir adapted to receive such articles delivered to it, orienting means adapted to orient said articles in said reservoir prior to delivery from said reservoir, said reservoir comprising a shallow rotating dish having air passage means in its bottom and an inclined rim with an outer ledge, and blower means adapted to direct a current of air from beneath said reservoir through said air passage means so as to elevate single articles to said ledge.

4,383,603

SCRAPER FOR CHAINS IN CHAIN CONVEYORS, PARTICULARLY FOR USE UNDERGROUND

Gerhard Niemöller, Waltrop; Wilfried Stromberg, Datteln, and Friedhelm Schneider, Witten, all of Fed. Rep. of Germany, assignors to Becker-Prunte GmbH, Datteln and Stahlhammer Bommern Gebr. Schneider, Witten-Bommern, both of, Fed. Rep. of Germany

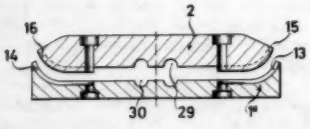
Division of Ser. No. 896,461, Apr. 14, 1978, Pat. No. 4,312,443. This application Nov. 17, 1980, Ser. No. 207,377

Claims priority, application Fed. Rep. of Germany, Apr. 20, 1977, 2717448; Apr. 20, 1977, 2717449

The portion of the term of this patent subsequent to Jan. 26, 1999, has been disclaimed.

Int. Cl.³ B65G 19/24

U.S. Cl. 198—731 11 Claims



1. A scraper for chains in chain conveyors comprising, when in the scraping position:

an elongated lower part having a partially concave upper surface extending along only a portion of the top of the lower part and terminating short of its ends, said upper surface extending entirely across said lower part in a lateral direction normal to the elongation of said part;

an upper part having an elongated dimension less than that of said lower part, said upper part having a partially convex lower surface extending entirely across said upper part in a lateral direction normal to the elongation of said part, said lower surface being formed for abutment with the upper surface of said lower part and being substantially coextensive with said upper surface, said upper part being so positioned on top of said lower part that said upper part is partially embraced by said lower part and that the ends of scraper are defined by the ends of said lower part;

means extending through said surfaces for securing said parts together, said means comprising the sole means for securing said parts together;

said surfaces being interrupted by at least a pair of chain beds and bar and groove means mutually interlocking when said surfaces are in abutment; and

said lower and upper parts being symmetrically formed about a vertical plane normal to the elongation of said parts.

4,383,604

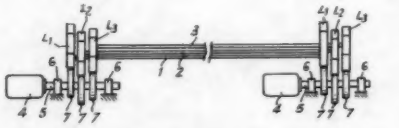
DEVICE FOR THE TRANSFER OF LONG PRODUCTS PARTICULARLY BARS OR TUBES

Francois G. Grandemange, Bailly, France, assignor to Vallourec, Paris, France

Filed Oct. 16, 1980, Ser. No. 197,702

Int. Cl.³ B65G 25/00

U.S. Cl. 198—775 11 Claims



1. A device for horizontally transferring long and heavy articles, particularly metal articles such as bars or tubes of circular section, in which the articles in the course of transfer are laterally spaced from each other and displaced laterally while rotating about themselves, said device comprising at least three sets of stringers, each set of stringers comprising at least two laterally spaced-apart stringers, each stringer having upwardly projecting teeth presenting surfaces symmetrical with respect to a vertical plane generally perpendicular to the travel path of the article, the teeth being equal to each other and spaced apart respectively horizontally, the teeth of the stringers of each set being aligned transversely of the direction of travel of the article, and the peaks of the teeth of the respective sets being spaced from each other in a direction parallel to the path of travel of the articles, and drive means for moving the stringers vertically in sequence to rotate and laterally displace an article thereon, said drive means comprising means for moving each peak of a tooth of each of the stringers exclusively in a vertical plane generally perpendicular to the travel path of the product, said drive means and said teeth of said stringers cooperating to comprise means for always supporting the article on teeth of at least two sets of stringers during lateral displacement of the article.

4,383,605

ACCUMULATING CONVEYOR WITH PNEUMATIC CONTROL SYSTEM

Warren J. Harwick, Milwaukee, Wis., assignor to Rexnord Inc., Milwaukee, Wis.

Filed Apr. 2, 1981, Ser. No. 250,437

Int. Cl.³ B65G 13/06

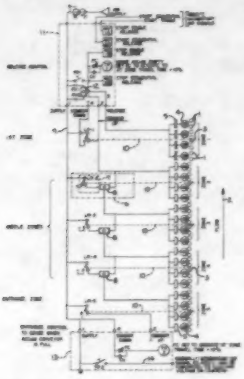
U.S. Cl. 198—781 19 Claims

1. A control system for an accumulating conveyor having a plurality of load carrying rollers and being divided into a plurality of zones, drive means for driving said rollers, and a fluid actuating means in each of said zones for affecting driving engagement and disengagement of said drive means with and from said rollers in said zone, said control system comprising a pneumatic logic module in each of said zones including:

a limit valve having a fluid passing position and a fluid not-passing position, said limit valve being movable to its

not-passing position in response to the presence of a conveyed article in the same zone; and

an OR valve having an outlet port and a pair of inlet ports, said OR valve providing fluid pressure from said outlet port to the actuating means of one of the zones of said



conveyor in response to fluid pressure at either of said inlet ports, one of said inlet ports being connected to said limit valve in the same zone and the other of said inlet ports being connected to the logic module of the adjacent downstream zone of said conveyor.

4,383,606

HYDROGEN STORAGE SYSTEM

James B. Hunter, Newtown Square, Pa., assignor to Johnson Matthey, Inc., Malvern, Pa.

Filed Dec. 19, 1980, Ser. No. 218,119

Int. Cl.³ B65D *25/00;* **F17C** *11/00;* **C01B** *1/26;* **F16L** *55/04*

U.S. Cl. 206—0.7 **35 Claims**

1. In a storage system for storing hydrogen gas, a storage cell comprising:

a membrane structure generally cylindrical in shape and defining a cylindrical cavity adapted to accepting a volume of hydridable material therein, and comprising: screen means and means for coating said screen means so that said membrane structure is permeable to hydrogen gas and impermeable to a hydridable material said coating means being a ceramic material formed by firing an aqueous binder solution comprising a powder containing aluminum, aluminum phosphate, a soluble chromium compound, and an organic amine compound; and means for plugging said cylindrical membrane structure opposingly disposed and fixedly attached at each end of said cylindrical membrane structure so that said cylindrical cavity is completely enclosed.

4,383,607

CLEAR PLASTIC DISPLAY BOX

Var E. Lordahl, 5847 S. Halsted St., Chicago, Ill. 60621, and Robert G. Bedrosian, 2103 Adams St., Rolling Meadows, Ill. 60008

Filed Dec. 28, 1981, Ser. No. 334,517

Int. Cl.³ B65D *75/20*

U.S. Cl. 206—45.34 **1 Claim**

1. A substantially rigid one-piece clear plastic display box comprising:

(a) a lower section medially depressed to receive and display articles of merchandise, an outwardly extending flange on upper margins of said depression, and a peripheral recess in said flange;

(b) a middle section recessed medially upwardly and having an outwardly extending flange at the lower end of said recess, a peripheral rib in said flange adjacent its edges for seating in said recess in said lower section to cover the articles of merchandise and retain them in said lower section, a plastic hinge positioned between said lower and medial sections; and

(c) an upper section medially depressed, an outwardly extending flange on the upper margin of said depression having a series of tabs extending inwardly of said flange and over said depression for supporting a card containing printed matter thereon.

4,383,608

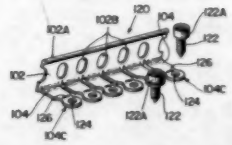
FASTENER STRIP AND STRIP FEEDING APPARATUS

Frank R. Potucek, Des Plaines, Ill., assignor to Duo-Fast Corporation, Franklin Park, Ill.

Continuation of Ser. No. 614,759, Sep. 18, 1975, abandoned, which is a division of Ser. No. 387,443, Aug. 10, 1973, abandoned. This application Dec. 3, 1979, Ser. No. 99,477

Int. Cl.³ B65D *85/24*

U.S. Cl. 206—347 **10 Claims**



1. An assemblage of headed fasteners having a head portion and a depending body portion comprising

a length of flexible web material having a series of indexing means thereon,

no more than a single row of tab portions projecting transversely from the flexible web material adjacent an edge thereof, said tab portions being spaced from each other and each having a free end laterally spaced from the web material,

means for stiffening said web,

fastener retaining means formed in the free end of each tab on said single row of said tab portions, each fastener retaining means including an opening through the free end of the tab.

4,383,609

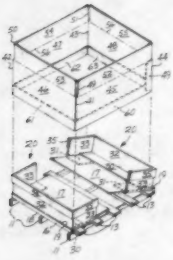
CONTAINER AND SUPPORTING PALLET

Eugene C. Lochmiller, Voorhees, N.J., assignor to Weyerhaeuser Company, Tacoma, Wash.

Filed Dec. 3, 1981, Ser. No. 326,871

Int. Cl.³ B65D *19/06, 19/20*

U.S. Cl. 206—386 **5 Claims**



1. A container comprising

a base member,

end locking sections hingedly attached to the end edges of said base member,

a pair of side wall locking members each locked to one of said end locking sections,

each of said side wall locking members having

a first central lower locking flap on the top face of one of said end locking sections, and

side locking flaps extending between said end locking sections and said base member,

a central side wall extending upwardly from said central locking flap along said hinged attachment between said locking section and said base member,

side wall elements extending upward from said side locking flaps,

a side wall locking flange on the upper edge of said central side wall and said side wall elements,

a rectangular side wall member telescoped around the outer edge of said side wall locking members,

said side wall member having

side walls,

side wall locking flaps extending from the lower edge of each side wall, said side wall locking flaps being hingedly attached to said side walls and extending upwardly internally of said side walls and mating with said flange.

5. A method of forming a container comprising

providing a base member having end locking sections hingedly attached to the end edges of said base member,

providing a pair of side wall locking members having three hingedly connected side walls, an upper locking flange and lower locking flaps,

placing the central locking flap of each of said side wall locking members against the outer face of one of said locking sections,

placing the side locking flaps of each of said side wall locking members against the lower face of one of said locking sections,

bending the locking sections down onto the base member,

providing a four-sided tubular element having the side wall locking flaps hingedly attached to the lower edge of each of said side walls,

bending said side wall locking flaps inwardly into said tubular element,

telescoping said side walls over said side wall locking members until said side wall locking flaps are beneath said flange.

4,383,610

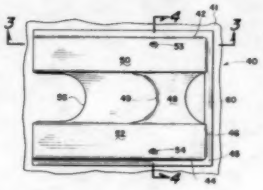
CASSETTE RETENTION POCKET

Donald L. Boshears, Tulsa, Okla., assignor to Pocket-Pak, Inc., Tulsa, Okla.

Filed Feb. 25, 1981, Ser. No. 237,851

Int. Cl.³ B65D *85/67*

U.S. Cl. 206—387 **5 Claims**



1. A container for holding rectangular cassette, said cassette formed to include a tape to recorder-playback intercept projection having a variety of vertical and horizontal openings, said container having identical side walls, a single end wall, a preformed top wall and an opened end wall forming a pocket for insertion of said cassette relative to a flat bottom wall, said top wall having a center portion spaced a given distance from said bottom wall and a pair of end portions each spaced a greater distance from said bottom wall than said center portion, the improvement comprising: at least one detent formed inwardly to mesh with at least one of horizontal openings of said cassette when said cassette is inserted in said pocket.

4,383,611

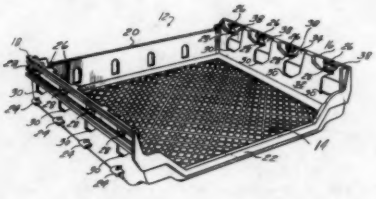
THREE-LEVEL STACK AND NEST CONTAINER

Elsmer W. Kreeger, Allegan, Mich., assignor to Pinckney Molded Plastics, Inc., Pinckney, Mich.

Filed Jan. 18, 1982, Ser. No. 340,114

Int. Cl.³ B65D *21/04*

U.S. Cl. 206—505 **12 Claims**



1. In an open-topped, stackable container having a rectangular bottom and a pair of opposed end walls projecting upwardly at a slight outward inclination from opposite ends of said bottom whereby one of said containers may receive a like container in a nested or stacked relationship therein; the improvement comprising a plurality of outwardly projecting, horizontally spaced and aligned support feet fixedly mounted on the outer side of each end wall adjacent the lower edge of said end wall, means defining a plurality of support foot receiving recesses in the inner side of each of said end walls respectively above each of said support feet, each of said recesses extending downwardly from the top of the end wall, means defining vertically spaced and vertically aligned upper, intermediate and lower support seats in each of said recesses, each

of said support seats being adapted to receive and support a support foot of a like container to support the like container respectively at an upper, an intermediate or a lower level upon the end wall, said upper seat being located adjacent the top of said end wall and centrally of the width of the recess, first guide means on said end wall at one side of said upper seat for guiding a support foot of a like container downwardly in said recess to said intermediate seat, and second guide means on said end wall at the opposite side of said upper seat for guiding a support foot of a like container downwardly in said recess to said lower seat.

4,383,612

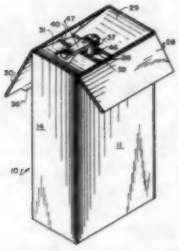
CARTON

Thomas D. Pawlowski, Neenah, Wis., assignor to James River-Dixie/Northern, Inc., Greenwich, Conn.

Filed Sep. 24, 1981, Ser. No. 305,230

Int. Cl.³ B65D *5/50, 81/00*

U.S. Cl. 206—525 **10 Claims**



1. In a carton of the type having side and bottom walls, an opening opposite said bottom wall, and closure means for said opening, said carton being adapted to contain a bottle having a base portion to rest on said bottom wall and be engaged by said carton side wall, and a neck portion including a rotationally locking dispensing nozzle thereon, the improvement wherein said closure means comprises: a pair of dust flaps hingedly connected for closing inwardly of said opening on opposed, side wall portions of said carton, one of said dust flaps including a recess on a free edge portion opposite its hinged connection positioned and adapted to receive for frictional engagement by said one flap of one side of a bottle neck portion, and the other of said dust flaps including a recess on a free edge portion opposite its hinged connection positioned and adapted to receive for frictional engagement by said other flap of a side of said bottle neck portion opposite said one side, said other dust flap further including an opening between said recess therein and said hinged connection and positioned and adapted to receive said dispensing nozzle for frictional retention by said other flap of the latter in a rotationally locked position; and closure flap means positionable for closing to extend over said dust flaps in the recited disposition of the latter, said closure and said dust flaps being so cooperatively disposed in the recited closed positions thereof to prevent movements of said bottle tending to move said dispensing nozzle to unlock the same.

4,383,613

GRADING DEVICE

Hendrik J. van Kettenbroek, Barneveld, Netherlands, assignor to Moba Holding Barneveld B.V., Netherlands

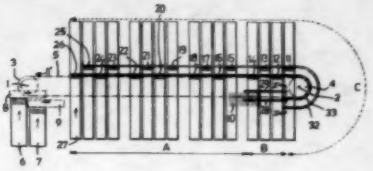
Filed Sep. 21, 1981, Ser. No. 304,302

Claims priority, application Netherlands, Sep. 22, 1980, 8005261

Int. Cl.³ A01K *43/08*

U.S. Cl. 209—514 **9 Claims**

1. Device for grading or sorting objects such as eggs, provided with conveying members for moving weighing devices the one after the other along an endless track, each of said weighing devices having a dischargeable gripper, along said track a device being mounted for feeding objects to the grippers, said track having a part in which said weighing devices are free to reach an equilibrium position, and furtheron along said track a number of discharge stations being located, each of



which is allotted to a predetermined weight class of the objects, characterized in that the weighing devices are located in at least two mutually parallel tracks, said conveying members being adapted to move said weighing devices along said at least two tracks, separate discharge stations being alotted to each of said tracks.

4,383,614

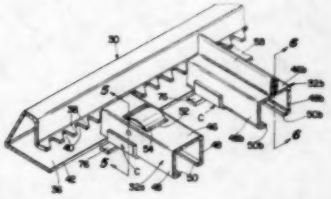
CLIP FOR RELEASABLY LOCKING RAILS TO SUPPORTS

Daniel A. Miller, Lebanon, Ohio, assignor to Nestler Corporation, Cincinnati, Ohio

Filed Sep. 22, 1980, Ser. No. 189,194

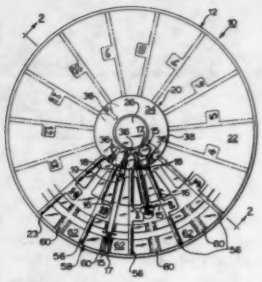
Int. Cl.³ A47F *5/00*

U.S. Cl. 211—49 D **16 Claims**



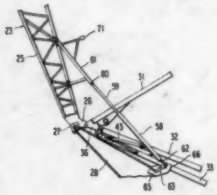
1. A shelf for an order picking rack comprising: a generally rectangular frame including opposite side frame members and front and rear rails, said rails having flanges extending toward one another inwardly of said frame, an elongated track member having opposite bottom end portions supported on said flanges, a clip member slidably mounted on said track member adjacent at least one end thereof for sliding movement between locking and releasing positions, said clip member having a tongue projecting therefrom, said clip member in said locking position having said tongue located on the opposite side of one said flange from one said bottom end portion for preventing upward displacement of said one end portion, and said clip member in said releasing position thereof having said tongue located in spaced relationship to said flange along said track member for allowing free upward movement of said one end portion from said one flange.

4,383,615
SYRINGE TRAY
Richard A. Aquino, Gurnee, Ill., assignor to Sherwood Medical Company, St. Louis, Mo.
Filed Oct. 30, 1980, Ser. No. 201,889
Int. Cl.³ A47F 7/00
U.S. Cl. 211—60 R **14 Claims**



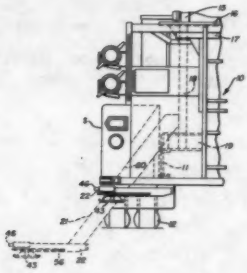
1. A tray for holding a plurality of syringes having needle sheaths thereon comprising a tray body including a hub having a plurality of spaced longitudinally extending sockets disposed in a portion of said hub in a circular array with their longitudinal axes extending radially, each of said sockets having an end opening for receiving the distal end of a sheath when the sheath is inserted longitudinally into a socket, and a slot in the sidewall of the socket extending longitudinally from said opening to permit the sheath to extend from the socket and through the slot in angular relation to the longitudinal axis of the socket.

4,383,616
LUFFING JIB FOR CONSTRUCTION CRANE
Russell L. Sterner, Greencastle, Pa., and Reginald P. Whittingham, Orange, Calif., assignors to Kidde, Inc., Clifton, N.J.
Filed Dec. 24, 1980, Ser. No. 219,912
Int. Cl.³ B66C 23/26
U.S. Cl. 212—182 **14 Claims**



1. In a crane, a main boom, a luffing jib pivotally mounted on the main boom, a pendant cable line for the support and control of the luffing jib connected with the luffing jib, first, second and third masts having corresponding inner ends pivotally connected with said luffing jib, cable means in said pendant cable line connected between said jib and said first mast, first and second hard pendant links in said pendant cable line, the first hard pendant link being connected between the first and second masts, the second pendant link having one end connected to the second mast, the opposite end of said second pendant link being connected to cable means in said pendant cable line including a bridle assembly, said opposite end of said second pendant link being separated from the third mast but moving into contact with the third mast when the luffing jib swings below a horizontal position and toward a near vertical stored position along said main boom, contact of the second hard pendant link with the third mast arresting movement of the pendant cable line toward said boom as said jib is approaching the stored position.

4,383,617
VEHICLE OUTRIGGER SUPPORT SYSTEM
Leonard V. Hychalk, Painted Post, N.Y., assignor to Figgie International Inc., Richmond, Va.
Filed Mar. 4, 1981, Ser. No. 240,280
Int. Cl.³ B66C 23/62
U.S. Cl. 212—189 **8 Claims**

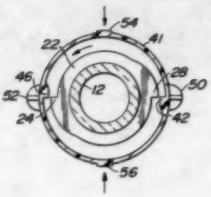


1. An improvement in a vehicle outrigger support for a vehicle, said vehicle having a frame with lateral sides with respect to its driving direction, said support comprising at least one housing on each side of said frame and means for securing said housing to the vehicle frame so that the housing extends angularly downwardly and outwardly from the vehicle frame; an outrigger leg movably positioned in said housing for movement between an upper inward storage position and a downward outward operative position, said leg having an outermost lower end and being of sufficient length so as to extend the outermost lower end to a position spaced closely to the ground outwardly of the adjacent lateral side of the vehicle when said leg is in its downward outward operative position; the improvement comprising means to increase the lateral stability of said vehicle, said means comprising a horizontally disposed support member on the outermost lower end of said outrigger leg, an outrigger extension slidably engaged for horizontal movement on said support member with respect to said outrigger leg between an inward storage position and an outward operative position, a support pad on said outrigger extension spaced outward from said support member that will engage the ground when said outrigger extension is in its outward operative position, means for latching said outrigger extension to said support member selectively in its outward operative position and inward storage position, and when said outrigger leg is extended, said housing, outrigger leg, and outrigger extension together forming a rigid beam cantilivered outwardly from the adjacent lateral side of the vehicle for supporting and stabilizing the same.

4,383,618
CHILDPROOF CONTAINER
Thomas R. Dougherty, Mays Landing, N.J., assignor to Dougherty Brothers Company, Buena, N.J.
Filed Feb. 12, 1982, Ser. No. 348,545
Int. Cl.³ B65D 55/02
U.S. Cl. 215—216 **4 Claims**

1. Apparatus comprising a container having an opening at one end, a plastic cap closing said opening, said cap having threads mating with threads on the container, said container having a pair of lugs, said cap having a mating pair of lugs, said cap having a portion which is deformable to disengage the cap lugs from the bottle lugs, said threads being double pitch

threads for quick release of the cap, said container having a radially outwardly extending flange below the elevation of said container threads, said container lugs being on the outer periphery of said flange, each container lug having a vertical side face lying generally along a mold parting line for the container neck.

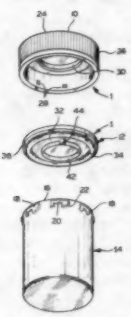


4,383,619

CONVERTIBLE CHILD-RESISTANT CLOSURE ASSEMBLY

George V. Mumford, Toledo, and James H. Price, Maumee, both of Ohio, assignors to Owens-Illinois, Inc., Toledo, Ohio

Filed May 14, 1981, Ser. No. 263,439
Int. Cl.³ B65D 55/02
U.S. Cl. 215—222 2 Claims



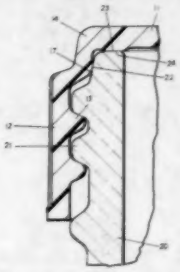
1. A child-resistant closure assembly for an open mouth container having an annular rim on the open end thereof, and circumferentially spaced locking lugs having downwardly opening notches, comprising: an outer shell, said outer shell including a circular panel section and an annular skirt depending from the periphery thereof, said skirt constructed and arranged to fit around the annular rim of the container, a plurality of integrally formed, and circumferentially spaced keys projecting inwardly from the inside annular surface of said skirt and constructed and arranged to fit within the notches of said locking lugs; and a resilient inner closure having an outside diameter larger than the inside diameter defined by the inner surfaces of said keys, whereby said inner closure is removably retained within said outer shell, said resilient inner closure including a central panel portion, an annular plug depending from said panel portion and constructed and arranged for an interference fit within said container rim, an annular skirt depending from the periphery of said central panel of said inner closure, said skirt and said plug defining between them an annular channel constructed and arranged to snugly receive the rim of said container, and grasping means on said inner closure to facilitate removal of said inner closure from said outer shell, comprising a handling ring integrally attached to the central portion of said inner closure within the circumference of said annular plug.

4,383,620

CONTAINER AND CLOSURE

George V. Mumford, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Nov. 23, 1981, Ser. No. 323,503
Int. Cl.³ B65D 41/04
U.S. Cl. 215—329 2 Claims



1. A package for pressure fluid containment comprising

a container having a neck defining annular wall about the center axis of the container with external threads formed along said wall thereon, an external, frustoconical sealing surface (22) formed above said threads and sloped upwardly and radially inwardly toward said center axis and a flat annular top surface (23) defining the mouth opening of the container,

a plastic closure comprising a top panel section, and an integral depending annular skirt section defining internal threads to cooperate with the complementary threads on the neck of the container,

an annular side sealing rib forming a series connected part of said skirt section extending radially inwardly from the inside surface of said skirt above said threads and having an internal surface dimensioned to form an interference fit only with said external frustoconical sealing surface of the container such that when the closure is threaded on the container, the rib is compressed into sealing relation with the external frustoconical sealing wall,

means on said panel section comprising a downwardly extending annular portion (24) for engaging the annular top surface of said container finish to form a top seal with the flat top surface of the container neck,

and an axially extending flexible annular wall section integrally connecting the periphery of said top panel section and said side sealing rib, said flexible annular wall section extending upwardly and inwardly from said rib to said panel section, and said wall section being of less thickness than said panel and said annular side sealing rib, whereby increasing internal container pressure on said top panel section increases the radial compressing force on said side sealing rib.

4,383,621

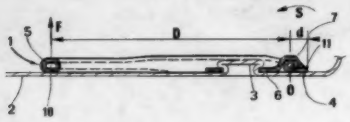
PULL TAB FOR AN EASY OPENING CAN

Rene Meneghin, and Ernest Hurther, both of La Fleche, France, assignors to Cebal, Clichy, France

Filed Jun. 30, 1981, Ser. No. 279,159
Claims priority, application France, Jul. 9, 1980, 80 15578
Int. Cl.³ B65D 45/00
U.S. Cl. 220—273 5 Claims

1. A gripping tab secured to and rotatable in a first direction for initiating removal of a removable panel in an easy open can comprising a substantially ring-shaped finger element including an anterior portion and an integral connecting strap portion, said strap portion including a fixed end secured to said ring and spirally wound thereabout, said strap terminating in a

free end extending into the interior of said ring portion and connected therewithin to said removable panel, said spirally wound strap portion encircling said anterior portion in a direc-



tion whereby when said rotatable gripping tab is rotated to open said can, the rotation of said tab is in a direction to tighten the spirally wrapped portion of said strap around said anterior portion of said ring-shaped tab.

4,383,622

SANITARY WASHBOTTLE KIT ASSEMBLY

Durward O. Guth, 24-B N. Ardmore Ave., Villa Park, Ill. 60181

Filed Mar. 9, 1981, Ser. No. 241,678
Int. Cl.³ B65D *39/16*
U.S. Cl. 222—209 **4 Claims**

1. An improved two part stopper constituting a wash-bottle kit assembly adapted for introducing tubing extending to the bottom of a flask whereby pressurized liquid passes up said tubing and out of the outlet of said tubing, said assembly comprising:

an apertured outer stopper housing formed with a depending leg which lies below the top of said outer housing to extend along the neck of the flask and is contoured to fit against said neck on the outside of said flask and below the lip thereof;

said depending leg provided with a vertical passageway extending therethrough which is connected at the one end to a bulb;

said depending leg provided at the other end remote from said bulb with a horizontal passageway which forms a bridge for air pumped by said bulb through said vertical passageway into said flask;

an inner stopper housing formed with a projecting flange adapted to snap-fit into a corresponding counterbore of said outer stopper housing and to form a common top surface therewith when assembled in the aperture thereof;

said outer stopper housing having a counterbore for snap-fitting with the projecting flange of said inner stopper housing;

said inner stopper housing being tapered at its bottom and providing a passageway below said flange between the tapered sides of said inner stopper housing and the inner wall of the neck of the bottle for pressurized air from said bulb to compress the liquid in said flask; and

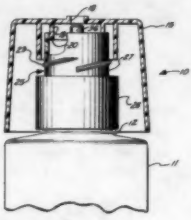
a central bore in said inner stopper housing for receiving the tubing which is bent at its outlet.

4,383,623

DISPENSING CLOSURE WITH STATIONARY AXIAL PLUG

Frank C. Page, III, Waterbury, Conn., assignor to Ethyl Products Company, Richmond, Va.

Filed Mar. 17, 1981, Ser. No. 244,672
Int. Cl.³ B67D *3/00*; B65D *47/28, 47/30*
U.S. Cl. 222—521 **2 Claims**



1. A two-piece dispensing closure for a container comprising:

a. insert means connectable to the container, said insert means having an upper cylindrical portion with an inwardly extending retaining ring on its upper end, a post centrally mounted therein with fluid passages adjacent thereto, and having threads on the outside thereof;

b. sleeve means having a top portion with a central opening to sealingly receive said post, and connected to said insert means by a downwardly extending inner cylinder with an outwardly extending retaining ring at its lower end that is slidably received inside the upper cylindrical portion of said insert means, and by a downwardly extending outer cylinder having threads on the inside thereof for engaging the threads on outside of the upper cylindrical portion of said insert means;

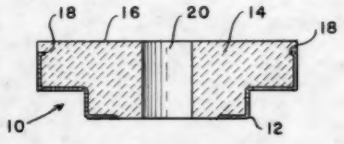
c. the threads on the outside of the upper cylindrical portion of said insert means and the threads on the inside of the outer cylinder portion of said sleeve means being so positioned that both of said threads are entirely disengaged prior to the retaining ring on the downwardly extending inner cylinder of said sleeve means engaging the retaining ring on the upper cylindrical portion of said insert means.

4,383,624

SLIDE GATE

Joseph L. Stein, Pittsburgh, Pa., and Thomas J. Maskell, Niles, Ohio, assignors to General Refractories Company, Bala Cynwyd, Pa.

Continuation of Ser. No. 843,112, Oct. 17, 1977, abandoned. This application Jan. 15, 1982, Ser. No. 339,511
Int. Cl.³ B62D *41/08*
U.S. Cl. 222—600 **9 Claims**



1. A slide gate portion of a valve for controlling the flow of molten material, said portion comprising:

a metal container; and

a coherent unfired refractory within said container, said refractory being affixed in direct contact with said container, said refractory being formed in said container from a particulate ceramic mixture and a binder, said binder

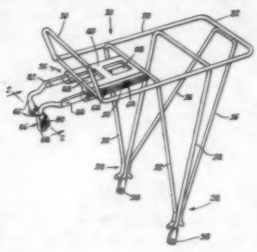
being capable of both forming a chemical bond with said ceramic and affixing said ceramic directly to said container at low temperatures.

4,383,625

ADJUSTABLE CONNECTION FOR A BICYCLE REAR CARRIER

Nai-Wen Kiang, Schaumburg, Ill., assignor to Schwinn Bicycle Company, Chicago, Ill.

Filed Apr. 8, 1981, Ser. No. 252,202
Int. Cl.³ B62J 7/04
U.S. Cl. 224—39 **9 Claims**



1. In an adjustable bicycle rear carrier having an elongated platform with a pair of legs depending from opposite sides of the platform and being pivotally attachable to a bicycle frame adjacent the rear axle;

an improved adjustable connection, adjustable to assemble the carrier on different size bicycles with the platform over the rear wheel parallel to the ground, comprising:

a slide block supported on the carrier at the front end portion of the platform and having a pair of separate, spaced, parallel, longitudinally extending, tube-like guideways;

a pair of slide rods respectively engaged within said guideways for fore-and-aft sliding movement relative to the slide block, each individual guideway substantially completely surrounding the respective slide rod and engaging it snugly along its length;

lock screw means acting between said slide block and each of said slide rods for securing the latter at a selected degree of extension beyond the slide block; and

means connecting the slide rods to a bicycle frame member above the rear wheel;

whereby the carrier can be assembled on a plurality of different size bicycles, with the platform level, by locking the slide rods at selected degrees of extension beyond the slide block.

4,383,626

TELEVISION VIEWING SUPPORT APPARATUS FOR USE IN AN AUTOMOBILE

Lee S. Weinblatt, 797 Winthrop Rd., Teaneck, N.J. 07666

Filed Apr. 6, 1981, Ser. No. 251,067
Int. Cl.³ B60R 11/02
U.S. Cl. 224—275 **3 Claims**

1. An apparatus for use in the front seat of an automobile to support a television set utilized for rear seat viewing and associated devices comprising

a frame shaped to fit over the backrest of said front seat, and having front, top and back portions with the front portion adapted to extend substantially to the cushion of said front seat;

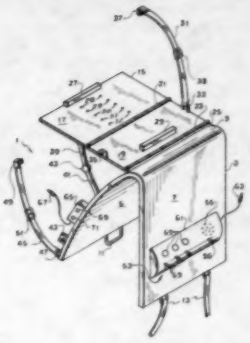
a platform hingedly fixed at one end to the top portion of said frame and its other end being extendable toward the front of the automobile;

means attached to the front portion of said frame and the platform adapted to set the horizontal position of said platform;

means to secure said television set to said platform,

means at the lower end of the frame-bottom portion for securing a video playback means to the frame;

a padded enclosure on the frame-back portion housing a



plurality of earphone jacks and a rearward-facing speaker coupled to an amplifier, said amplifier being adapted for coupling to the audio circuit of said television set;

a power source on the frame with a plug adapted for insertion into the automobile cigarette lighter; and

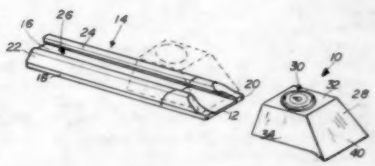
said power source being adapted for coupling to the video playback means, the amplifier, and the television set.

4,383,627

LUGGAGE RACK LOCKING DEVICE

Charles E. Ingram, Warren, Mich., assignor to Four Star Corporation, Troy, Mich.

Continuation of Ser. No. 913,662, Jun. 8, 1978, abandoned. This application Oct. 8, 1980, Ser. No. 195,206
Int. Cl.³ B60R 9/00, 9/04
U.S. Cl. 224—315 **2 Claims**



1. A lock for a vehicle associated slat having a track formed therein, the track having upstanding side walls terminating in inwardly projecting top walls, the lock comprising:

(1) a housing, said housing comprising:

(a) a top wall,

(b) a pair of spaced apart side walls depending from said housing top wall,

(c) a forward wall,

(d) a rear wall, each of the housing walls being integrally formed to define said housing, the bottom edges of each of the housing walls riding upon the slat,

(e) a guide plate formed integrally with said housing gear wall and projecting inwardly therefrom toward said housing forward wall, said guide plate being insertable into said track subadjacent the inwardly projecting top walls of the slat, said rear wall adapted to abut an end of the track to limit the movement of the housing along the track,

(2) a locking means movable between a locking position and

an unlocked position, said locking means secured to the top wall of the housing and projecting downwardly therefrom,

(3) a wedge member interconnected to said locking means and movable therewith, said wedge member being attached to the free end of said locking means and projecting below said bottom edges of said housing walls, said wedge member being disposable in said track, and wherein said wedge member is movable into engagement with at least one of the side walls of said track by movement of said locking means to fix said lock in position.

4,383,628

TRAVERSE FOR USE IN LUGGAGE RACKS OF AUTOMOTIVE VEHICLES OR THE LIKE

Rolf Hiller, Kippenheim, Fed. Rep. of Germany, assignor to Hiller Vertriebs-GmbH für Fahrzeugteile, Schmieheim, Fed. Rep. of Germany

Filed Mar. 18, 1981, Ser. No. 245,178

Claims priority, application Fed. Rep. of Germany, Mar. 26, 1980, 3011641

Int. Cl.³ B60R *9/04, 9/12*

U.S. Cl. 224—319 **28 Claims**

1. A framework, particularly a rack for storage of luggage, skis or other commodities on the roof of an automotive vehicle, comprising a plurality of spaced-apart elongated carriers; and a traverse extending traversely of said carriers and comprising a plurality of elongated sections telescoped into and movable relative to each other, said sections each having open-ended sockets comprising elongated slots and including registering portions for engaging parts of said carriers, wherein the slots on each of said carriers are inclined relative to each other and make an oblique angle relative to the longitudinal direction of the sections and, further wherein the slots of one of said sections intersect the slots of another of said sections and such slots have aligned zones which comprise the registering portions of the respective sockets; and fastener means for releasably securing said sections to each other.

4,383,629

REAR BAGGAGE CARRIER OR RACK

Volkmar Kerkow, Kalenbarg 12, 2000 Hamburg 53, Fed. Rep. of Germany

Filed Apr. 14, 1981, Ser. No. 254,082

Claims priority, application Fed. Rep. of Germany, Jul. 5, 1980, 8018067

Int. Cl.³ B60R *9/00*

U.S. Cl. 224—329 **5 Claims**

1. A baggage rack assembly for use with vehicles comprising a base frame member formed with both vertical and horizontal members into a one piece structure and having a front and rear surface as well as upper, lower and intermediate portions, upper support means affixed to each side of said base frame member adjacent the upper portion thereof for supporting said rack on the vehicle, the vehicle having gutter-like structure and said upper support means including a pair of members extending away from the rear surface of said base frame member each of which include a transversely extending spar member adapted to fit within the gutter-like structure, support frame means pivotally attached to said base frame member adjacent the intermediate portion thereof for supporting loads and being movable between raised and lowered positions, at

least one bracket for being secured to the vehicle a predetermined distance below the gutter-like structure, and at least one securing means for removably securing the bottom portion of said base frame member to said at least one bracket.

4,383,630

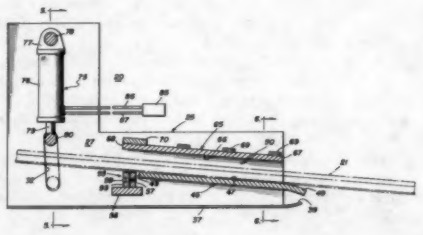
RAIL LIFTING AND CUTTING MACHINE

Steven P. Solomon, 2949 Harrison, Paducah, Ky. 42001, and James L. Dunaway, Grand Chain, Ill. 62941

Filed Mar. 23, 1981, Ser. No. 246,409

Int. Cl.³ B26F *3/00*

U.S. Cl. 225—103 **10 Claims**

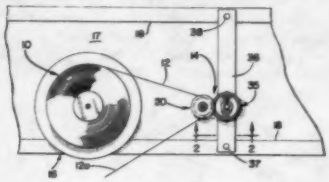


1. Apparatus for simultaneously removing and in situ severing of rails from a rail bed to produce a plurality of rail sections of predetermined lengths comprising a sled frame defining a rail channel, a block mounted on said sled frame rearwardly of said rail channel extending across said channel, ram means mounted on sled frame above the position of a rail when a rail is in said rail channel, said ram means being mounted on said frame rearwardly from said block, means defining a ram path from a level above the position of a rail in said rail channel to a level below the position of a rail in said rail channel, and control mechanism associated with said ram means for actuating said ram to travel along said ram path to contact a rail in said rail channel and force same against said block to cause the rail to fracture, whereby movement of said sled frame along the rail bed and operation of said ram means causes the rails to be lifted from the rail bed and to be cut into predetermined lengths.

4,383,631
TENSIONING CONTROL DEVICE

Wayne K. Fairchild, 3620 W. Pendleton Ave., Santa Ana, Calif. 92704

Filed May 4, 1981, Ser. No. 260,403
Int. Cl.³ B65H *17/22, 59/12*
U.S. Cl. 226—186 6 Claims

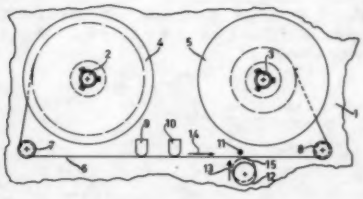


1. A tensioning control device for the dispensing of a continuous roll of ribbon or tape under uniform tension, comprising:
a spool mounted to a fixed structure to rotate about its axis;
a frictional roller means mounted to be adjustably positioned relative to said spool, whereby said ribbon or tape is interposed therebetween;
means for adjustably positioning said frictional roller means contiguously with said spool,
wherein said adjustable positioning means comprises an elongated arm member having one end thereof pivotally attached to said fixed structure, the opposite end thereof including a locking means to lock said frictional roller means in place adjacent said spool; and
means for compressing said frictional roller means for controlled frictional engagement with said ribbon or tape, when positioned between said spool and said frictional roller means.

4,383,632
RECORDING AND/OR REPRODUCING APPARATUS

Karl Rupp, and Henricus Ruyten, both of Vienna, Austria, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 217,739, Dec. 18, 1980, abandoned. This application Feb. 2, 1981, Ser. No. 230,830
Claims priority, application Austria, Dec. 21, 1979, 8112/79
Int. Cl.³ B65H *17/20*
U.S. Cl. 226—190 10 Claims

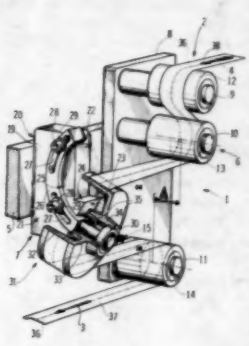


1. A tape recorder comprising:
a capstan for transporting a tape placed on the recorder,
a pressure roller arranged on an arm for pressing the tape against the capstan, said arm being pivotable about a pivot axis for movement of the roller between at least one rest position and one operating position,
a lever arranged to be pivotable about said pivot axis together with the arm, and also pivotable with respect to said arm,
a resilient element connecting said lever to said arm, and arranged such that in the operating position the resilient element biases the roller against the capstan, and
an actuating device arranged for cooperation with the lever to pivot the lever,
characterized in that the recorder includes first and second pivoting arrangements, defining respective first and second pivoting axes against which the lever is pivotable relative to said arm, the distance between the pressure roller and said pivot axis being greater than the respective distances between the roller and said first and second axes,
said arrangements include means, responsive to the pivotal movement of the lever caused by the actuating device, for enabling and disabling the pivoting functions about said first and second axes, and
said resilient element is arranged such that it is stressed for biasing or released in response to pivotal movement of the lever about said second axis.

4,383,633
DEVIATOR DEVICE FOR WEBS, PARTICULARLY PAPER WEBS

Enzo Seragnoli, Bologna, Italy, assignor to G.D Societa' per Azioni, Bologna, Italy

Filed Feb. 4, 1981, Ser. No. 231,330
Claims priority, application Italy, Feb. 27, 1980, 3346 A/80
Int. Cl.³ B65H *17/20*
U.S. Cl. 226—194 5 Claims



1. A deviator device for webs, particularly paper webs and the like, comprising an inlet guide surface and an outlet guide surface for said web; a deviator drum mounted to rotate about a first axis and disposed between the inlet guide surface and the outlet guide surface, said web winding in contact with part of the periphery of said drum when in use; and adjustable support means for the drum for varying the position of said first axis about a second axis which is perpendicular to the first axis and tangential both to said drum surface and to said inlet surface.

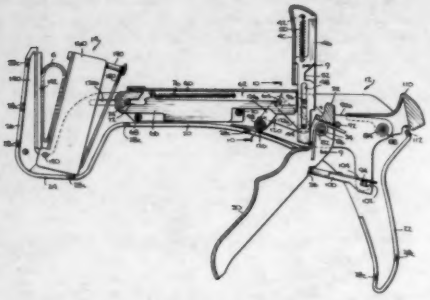
4,383,634
SURGICAL STAPLER APPARATUS WITH PIVOTALLY MOUNTED ACTUATOR ASSEMBLIES

David T. Green, Norwalk, Conn., assignor to United States Surgical Corporation, Norwalk, Conn.

Filed May 26, 1981, Ser. No. 267,080
Int. Cl.³ A61B *17/04*
U.S. Cl. 227—19 22 Claims

1. Surgical stapling apparatus comprising:
a frame for supporting a stapling assembly adjacent a distal portion of the frame;
a first actuator means pivotally mounted relative to a proximal portion of the frame, the first actuator means being pivotable away from the frame sufficiently to allow cleaning of both the first actuator means and the frame without removal of the first actuator means from the frame;
a second actuator means mounted relative to the frame for both pivotal and reciprocal motion and located intermediate the first actuator means and the stapling assembly, the second actuator means being pivotable away from the

frame sufficiently to allow cleaning of both the second actuator means and the frame without removal of the second actuator means from the frame; and



means for interconnecting the first and second actuator means so that the second actuator means responds to pivoting of the first actuator means by translating toward the stapling assembly and at least partially actuating the stapling assembly.

4,383,635

DISPOSABLE CONTAINER

Minoru Yotoriyama, 7-2 Itakura-cho, Ashikaga-shi, Tochigi, Japan

PCT No. PCT/JP80/00021, § 371 Date Oct. 15, 1980, § 102(e) Date Oct. 15, 1980

PCT Filed Feb. 15, 1980, Ser. No. 198,006

Claims priority, application Japan, Feb. 15, 1979, 54-17059[U]

Int. Cl.³ B65D *33/02*

U.S. Cl. 229—1.5 H **5 Claims**

1. A disposable container comprising:

a liquid receiving body formed of a thin synthetic resin material capable of retaining its shape when empty and having a base;

an extended edge portion formed of said synthetic resin and projecting upwardly from said receiving body and having an upper leading edge portion;

a circumferential edge portion formed of said synthetic resin and separating said extended edge portion from said receiving body and having a circumference greater than the circumference of said upper leading edge portion of said extended edge portion;

said synthetic resin material further comprising a pliant synthetic resin material such that said extended edge portion can be folded down and outwardly from said upper leading edge about said circumferential edge portion;

a receptacle frame for supporting said receiving body in a required posture and having an upper edge formed in a shape substantially the same as an outer shape of said circumferential edge portion and being disposed at a height substantially the same as the distance of said circumferential edge portion from said base such that said upper edge of said receptacle frame is squeezed by said circumferential edge portion when said extended edge portion of said receiving body is folded down and outwardly over said upper edge of said receptacle frame; and

hand gripping means integrally connected to said receptacle frame.

4,383,636

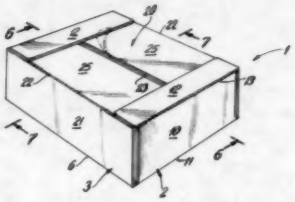
CONTAINER

John M. Chaffers, Santa Ana, Calif., assignor to Champion International Corporation, Stamford, Conn.

Filed Jun. 8, 1981, Ser. No. 271,395

Int. Cl.³ B65D *43/02, 5/54, 5/68*

U.S. Cl. 229—32 **9 Claims**



1. A container comprising a tray and a cover, said tray having a bottom wall, opposed end walls and opposed side walls, each of said end walls having an upstanding top flap, each said top flap having a free edge remote from its respective side wall, said cover comprising a top wall and a pair of parallel side flaps extending from opposed side edges thereof, said top wall having opposed top wall end areas normal to said side flaps and defined by parallel tear lines spaced inwardly from respective side edges normal to said opposed side edges, said tear lines substantially underlyingly aligned with the respective free edges of said top flaps, said side flaps being attached to the outside of said side walls of said tray, said top flaps being folded over said top wall end areas and attached to said end area.

4,383,637

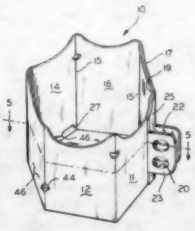
CARTON FOR COMESTIBLES AND STRUCTURE FOR ERECTING SAME

Gerald R. Pfieffer, Seattle; Gary W. Robertson, Tacoma; Charles H. Thompson, Woodinville, and Jerry D. Williams, Redmond, all of Wash., assignors to Container Corporation of America, Chicago, Ill.

Filed Aug. 3, 1981, Ser. No. 289,367

Int. Cl.³ B65D *5/08*

U.S. Cl. 229—38 **1 Claim**



1. A carton formed from a cut and scored blank of paperboard comprising:

(a) a polyhedron having six side walls foldably joined, one of said side walls having an outer wall panel and an equi-size inner wall panel, said outer panel wall overlapping said

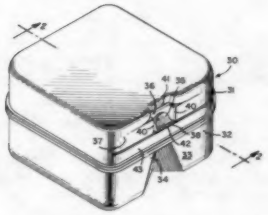
inner wall panel and being secured thereto to form said polyhedron;
(b) a hexagonal bottom panel foldably joined to a side wall;
(c) a pair of bottom panel supporting triangular folded flaps foldably secured to diametrically opposed side walls and and a glue tab foldably attached to each said flap, a pair of gusset flaps each foldably attached to diametrically opposed side walls and underlying a respective glue tab and secured thereto;
(d) said bottom panel being foldably connected along a fold line to said inner wall panel of said one side wall between said bottom panel supporting flaps;
(e) upturned flanges foldably joined to edges of said bottom panel distal from said fold line;
(f) slots cut in the vertices of certain of said connected side walls remote from said inner wall panel of said one side wall where said bottom panel is connected;
(g) said flanges and said slots cooperating to lock said bottom panel in position when said carton is erected; and
(h) tabs formed in the intermediate area of certain connected side walls adjacent said upturned flanges for overlapping said flange in locking relationship.

4,383,638

CARTON LOCK

Kenneth D. Bixler, Huntington, N.Y., assignor to Diamond International Corporation, New York, N.Y.

Filed Sep. 29, 1981, Ser. No. 306,982
Int. Cl.³ B65D *85/32, 5/66*
U.S. Cl. 229—45 EC **8 Claims**



1. In a molded container having a lower tray section and an upper cover section hingedly connected to said tray section, said tray section having at least one upstanding male latching member formed on the front side thereof, said cover section having an orifice or female latching formation molded in the front side thereof, said container being further characterized in that the upstanding member includes a substantially hollow formation having side walls which taper outwardly and downwardly to an integral peripheral rib or flange.

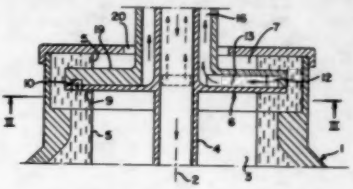
4,383,639

ARRANGEMENT FOR REMOVING LIQUID FROM A ROTATING HOUSING

Gunnar Hovstadius, Sigtuna, Sweden, assignor to Alfa-Laval AB, Tumba, Sweden

Continuation of Ser. No. 72,589, Sep. 5, 1979, abandoned. This application Jun. 15, 1981, Ser. No. 273,609
Int. Cl.³ B04B *1/00, 3/00*
U.S. Cl. 494—43 **9 Claims**

1. In combination with a rotary housing having a rotation axis and adapted to receive a liquid which, during rotation of the housing, forms an annular liquid body rotating around said axis in one direction, means for removing liquid from said body comprising a stationary paring device having a disc adapted to extend substantially radially into the rotating liquid body, the disc being provided with an outer peripheral edge extending around said axis, said disc having a channel for draining liquid from the housing and also having opposite exterior surfaces lying in respective planes extending substantially radially from said axis to said outer edge, one of said surfaces facing toward said liquid body, said disc also having an opening which is sunken in said one surface and forms an entrance of said channel, the portion of said channel adjoining said opening being formed so that liquid flows in through said opening along a path located at a substantially constant radius from said axis, said disc having a ramp sunken in said one surface and extending therefrom toward the opening in said one direction of rotation of the liquid body, said ramp forming a gently sloping



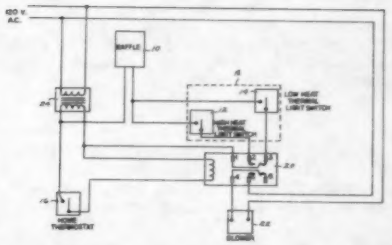
bottom for guiding the liquid into the channel by way of said opening, said sloping bottom, opening and the portion of the channel adjoining said opening being formed so that liquid enters the opening along said path in a plane substantially perpendicular to said rotation axis, said channel extending from the opening through the disc beneath said one surface at a samall and constant distance from said one surface, said outer peripheral edge being substantially confined between said planes.

4,383,640

HEAT CONTROL DEVICE FOR A WOOD OR COAL BURNING STOVE

Paul W. Pearson, P.O. Box 7, Westville, Ind. 46391

Filed Dec. 14, 1981, Ser. No. 330,520
Int. Cl.³ F23N *3/04*
U.S. Cl. 236—11 **5 Claims**



1. A heat control device for a wood and coal burning stove having a combustion chamber where wood or coal is burned, a combustion air inlet into said combustion chamber, said control device comprising means for regulating the flow of combustion air from said air inlet into said combustion chamber, a high heat thermal sensing means and a low heat thermal sensing means in heat transfer relationship with said combustion chamber for sensing the temperature thereof, said combustion air regulating means being responsive to either of said thermal sensing means by reducing the amount of combustion air into said combustion chamber when either sensing means approaches its upper temperature limit while connected to the regulating means, a thermostat means for sensing ambient temperature, means responsive to said thermostat means for connecting said high heat thermal sensing means to said combustion air regulating means when the thermostat means senses a low specified ambient temperature wherein the combustion air into said combustion chamber is regulated between specific

high temperature limits sensed by said high heat thermal sensing means, said connecting means also connecting said low heat thermal sensing means to said combustion air regulating means when the thermostat means senses a high specified ambient temperature wherein the combustion air into said combustion chamber is regulated between specific low temperature limits sensed by said low heat thermal sensing means.

4,383,641

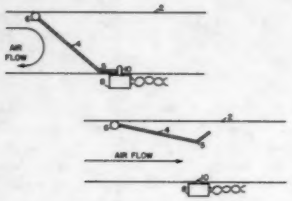
ELECTRICALLY-CONTROLLED DAMPER

James S. Shreve, 10027 Black Ct., Fairfax, Va. 22032

Division of Ser. No. 148,652, May 12, 1980, Pat. No. 4,277,019. This application Jul. 1, 1981, Ser. No. 279,387

Int. Cl.³ F24F 7/06

U.S. Cl. 236—49 **8 Claims**



8. In combination with a common source of fluid:

multiple duct means for distributing said fluid to multiple locations;

freely pivoted damper means located in each of said multiple duct means, for allowing free flow of said fluid through each of said multiple duct means in an open position and for preventing free flow of said fluid in a closed latched position, said damper means maintained in said open position by flow of said fluid;

latching means for securing said damper means in said closed latched position;

a thermostat located in each of said multiple locations for unlatching said latching means in a particular duct distributing fluid to a particular location; and

means for returning each of said multiple damper means to said closed latched position upon cessation of fluid flow through each of said multiple ducts.

4,383,642

HEATER UNIT FOR USE IN AN AIR CONDITIONER FOR AUTOMOTIVE VEHICLES

Seiji Sumikawa, and Kazuo Utsugi, both of Saitama, Japan, assignors to Diesel Kiki Co., Ltd., Saitama, Japan

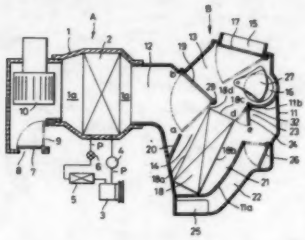
Filed Mar. 11, 1981, Ser. No. 242,634

Claims priority, application Japan, Mar. 22, 1980, 55-37836[U]; Aug. 15, 1980, 55-115813[U]; Aug. 15, 1980, 55-115814[U]

Int. Cl.³ B60H 1/02

U.S. Cl. 237—12.3 A **8 Claims**

1. A heater unit for use in an air conditioner, which comprises: a casing having an interior thereof formed with an air inlet passage, a face-level air outlet opening in a peripheral wall of said casing at an upper portion thereof, a floor air outlet opening in a peripheral wall of said casing at a lower portion thereof, a discharging air passage extending between said air inlet passage and said face-level air outlet, a floor discharging air passage extending between said discharging air passage and said floor air outlet, a heating air passage branching from said air inlet passage, a hot air passage extending between said heating air passage and said discharging air passage, and a defroster air outlet opening in a peripheral wall of said casing in communicating with same; a heater core arranged within said casing at an intersection of said heating air passage with said hot air passage, said heater core having a first end wall formed with an inlet and facing said heating air passage, a second end wall formed with an outlet and facing said hot air passage, and two side walls extending between said end walls; said hot air passage extending along said second end wall of said heater core and also extending at least as far as one of said side walls thereof; a first damper for selectively opening and closing said face-level air outlet; a second damper for selectively opening and closing either said floor air outlet or said floor discharging air passage; a third damper pivotally arranged at a location between said air inlet passage and said discharging air passage; said third damper being disposed to allow air introduced into said air inlet passage to be guided into said discharging air passage alone, at a first extreme position thereof and allow said air to be guided into said heating air passage alone, at a second extreme position thereof, substantially all said air thus guided into said heating air passage being delivered into said heater core, while allowing said air to be guided into both said discharging air passage and said heating



air passage, at an intermediate position thereof between said first and second extreme positions; a fourth damper located remotely of said heater core and arranged at an intersection between said discharging air passage and said hot air passage or at a location in the vicinity of the last-mentioned intersection for selectively allowing and interrupting communication therebetween, said fourth damper being movable to a fully closed position to prevent any backflow to said heater core through said hot air passage when in said fully closed position; and coupling means operatively connecting said third damper with said fourth damper, said coupling means being operable to bias said fourth damper in a position to interrupt the communication between said discharging air passage and said hot air passage to prevent part of air in said discharging air passage from being guided to said heater core through said hot air passage when said third damper is in said first extreme position, and in a position to allow the same communication when said third damper is in either of said second extreme position and said intermediate position.

4,383,643

BOILER TANK FOR EFFICIENTLY CIRCULATING LOW-TEMPERATURE WATER

Lan S. Sohn, 4-1, Mok-dong, Gangso-Ku, Seoul, Rep. of Korea

Filed Jun. 22, 1981, Ser. No. 276,025

Claims priority, application Rep. of Korea, Oct. 15, 1980, 6573[U]

Int. Cl.³ F16T 1/06

U.S. Cl. 237—60 **5 Claims**

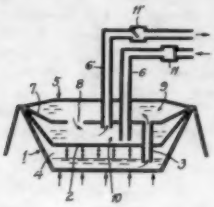
1. In a hot-water heating system, a boiler tank (1) comprising

a first partition (2) defining a first chamber (4) adapted to be heated to vaporize water therein,

a second partition (7) defining a second chamber (9) and further defining a third chamber (10) between said first and second chambers,

inlet (6) and outlet (6') pipes each communicating with said second chamber,

first means (3) for intercommunicating said first and second chambers, and



second means (8) for intercommunicating said second and third chambers.

4,383,644

PROCESS AND APPARATUS FOR THE ELECTROSTATIC SPRAYING OF ELECTRICALLY CONDUCTIVE PAINT

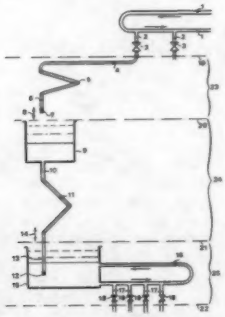
Albertus C. Spanjersberg, Leiderdorp, Netherlands; Hans G. Mink, Stuttgart, Fed. Rep. of Germany, and Johannes H. M. Barwegen, Apeldoorn, Netherlands, assignors to Akzo N.V., Netherlands

Continuation of Ser. No. 2,804, Jan. 11, 1979, Pat. No. 4,275,834. This application Feb. 20, 1981, Ser. No. 236,549

Claims priority, application Netherlands, Jan. 11, 1978, 7800307

Int. Cl.³ B05B *5/02*

U.S. Cl. 239—3 **2 Claims**



1. In a process for the electrostatic spraying of an electrically conductive liquid coating material wherein the liquid to be sprayed is intermittently fed while free of electric charge from a main supply system via a first outlet valve to a buffer supply vessel and intermittently fed from the buffer supply vessel via a second outlet valve to a second vessel which contains a supply of liquid to be sprayed and is continuously electrically charged during operation, the latter vessel being connected to at least one spray unit for spraying the liquid, the main supply system being electrically insulated from the spray liquid supply vessel, the improvement which comprises electrically charging the liquid material in the buffer supply vessel before said second outlet valve is opened and after said first outlet valve is closed.

4,383,645

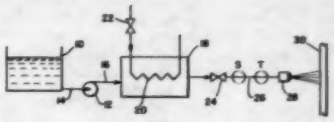
VAPOR SPRAYER AND PROCESS FOR PROVIDING A VOLATILE FLUID AS A VAPOR SPRAY

Francis J. Figiel, Boonton, and Harry F. Osterman, Westfield, both of N.J., assignors to Allied Corporation, Morris Township, Morris County, N.J.

Filed Dec. 15, 1980, Ser. No. 216,046

Int. Cl.³ B05B *1/24*

U.S. Cl. 239—13 **16 Claims**



1. A volatile liquid solvent sprayer apparatus comprising

a reservoir adapted to contain a volatile liquid solvent that is useful for cleansing when heated to a temperature just below its boiling point;

a pump for drawing the volatile solvent from said reservoir;

a heat exchanger containing a heating element adapted to heat the volatile solvent to a selected temperature just below its boiling point, the volatile solvent being in heat-transfer relationship with and exterior to said heating element as it passes through said heat exchanger; said pump being situated between and in fluid connection with said reservoir and said heat exchanger; said heating element having heat output control means;

a discharge valve for discharging the heated solvent from said heat exchanger, said heated solvent being at said selected temperature when discharged; said discharge valve being in fluid connection with said heat exchanger and at least one nozzle; and

said at least one nozzle, which delivers the discharged solvent as a liquid spray just below the boiling point of a solvent.

4,383,646

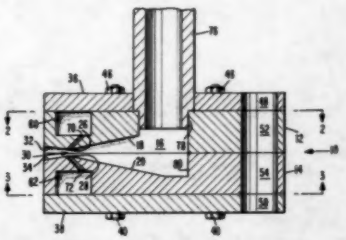
SNOW MAKING NOZZLE

Fergus S. Smith, P.O. Box A, South Londonderry, Vt. 05155

Filed Nov. 19, 1980, Ser. No. 208,380

Int. Cl.³ F25C *3/04*

U.S. Cl. 239—14 **1 Claim**



1. A snow making nozzle assembly for use in atomizing water and projecting the water into atmosphere having an ambient temperature below about 32° F. to form snow, and nozzle assembly comprising:

upper and lower nozzle plates;

plural spaced angled water outlet ports passing through said upper and lower nozzle plates with each said water outlet port in said upper plate being positioned substantially directly above and in opposition to a corresponding one of said water outlet ports in said lower plate;

upper and lower water distribution means in said upper and

lower nozzle plates, said water distribution means overlying corresponding water outlet ports for supplying water under pressure to said water outlet ports;

a converging-diverging flat nozzle in said plates, said nozzle extending outwardly from a compressed air inlet at an interior portion of said plates to an elongated outlet at a peripheral portion of said plates, said water outlet ports terminating at upper and lower apexes of said upper and lower nozzle plates, said apexes forming the venturi of said converging-diverging nozzle; and,

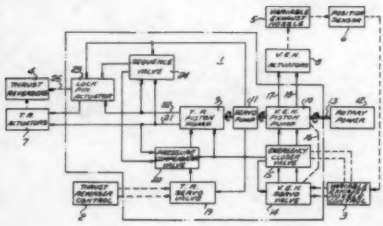
a mixing space defined by said diverging portion of said nozzle, said water outlet ports being angled toward said nozzle outlet to cause the water supplied under pressure to said upper and lower water distribution means to pass through said water outlet ports in separate streams each of which impinges on a corresponding stream from an opposed water outlet port for atomization in said mixing space out of contact with said nozzle plates, said water outlet ports further being angled sufficiently toward said nozzle outlet to direct the atomized water out from said mixing space through said nozzle outlet, and to prevent flow of the atomized water into the interior of said nozzle to thereby prevent choking of said nozzle, air under pressure passing out through said nozzle from said compressed air inlet and contacting said atomized water to atomize it further and to assist in carrying said atomized water into the atmosphere for formation of snow.

4,383,647

INTEGRATED HYDRAULIC CONTROL CIRCUIT FOR JET ENGINE THRUST REVERSER AND VARIABLE EXHAUST NOZZLE

Frank Woodruff, New Hartford; John H. Ferguson, Jr., Sauquoit, and John R. Hoffman, New Hartford, all of N.Y., assignors to The Bendix Corporation, Teterboro, N.J.

Filed Aug. 22, 1980, Ser. No. 180,273
Int. Cl.³ F02K 1/15
U.S. Cl. 239—265.19 **29 Claims**



14. An integrated hydraulic circuit for controlling the position of the hydraulic actuators for the thrust reversers a variable exhaust nozzle of a gas turbine engine wherein the thrust reversers include a locking mechanism for locking the thrust reversers in the stowed position, said hydraulic circuit comprising:

a housing defining a chamber containing case fluid at a case pressure;

a shaft disposed in said housing adapted to be rotably driven by an external power source;

servo pump means driven by said shaft for increasing the pressure of said case fluid to supply control fluid at a servo pressure;

first servo valve means for modulating said control fluid to generate hydraulic nozzle directional control signals in response to electrical signals received from an external source;

first piston pump means driven by said shaft for supplying nozzle actuator fluid to the exhaust nozzle actuators in response to said nozzle control signals;

second servo valve means for modulating said control fluid to generate hydraulic thrust reverser position signals in response to electrical signals received from an external source;

second piston pump means for alternatively supplying deploy fluid and stow fluid to the thrust reverser actuators in response to said hydraulic position signals;

sequencing valve means for modulating said control fluid in response to said second piston pump means supplying said deploy and said stow fluids to generate at an output hydraulic lock and unlock signals; said sequencing valve having a first state generating said unlock signal in response to said deploy fluid exceeding a first predetermined value, and a second state generating said lock signal in response to said stow fluid exceeding a second predetermined pressure; and

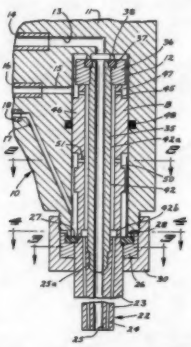
lock pin actuator means for controlling the transmission of said deploy fluid to the thrust reverser actuators and for locking and unlocking the thrust reverser locking mechanism in a predetermined sequence in response to said hydraulic lock and unlock signals.

4,383,648

TORCH APPARATUS

Frank C. Lunquist, New Brighton, and Frank T. Kawamoto, Minneapolis, both of Minn., assignors to Tescom Corporation, Minneapolis, Minn.

Filed Nov. 30, 1981, Ser. No. 325,971
Int. Cl.³ F23D 11/16
U.S. Cl. 239—419.3 **15 Claims**



1. Torch apparatus comprising a torch head having a torch head bore and cutting oxygen, preheat oxygen and fuel gas passageways opening to the torch head bore, a torch tip assembly removably extendable into the head bore and having an axially elongated central cutting oxygen bore in fluid communication with the head cutting oxygen passageway and means for removably securing the tip assembly to the torch head, the tip assembly including a torch tip member having an axially elongated stem portion extended into the bore and an axially elongated front member portion joined to the stem portion to extend away therefrom and from the torch head, said front member portion having an annular transverse rear surface surrounding the stem portion, an axially opposite front surface, and a plurality of axially elongated mixed gas passageways opening through the front member portion front surface and axially elongated annular means removably secured to the stem portion to in cooperation therewith define a plurality of axially elongated, circumferentially spaced grooved passages for conducting preheat oxygen and fuel gas and at least nearly form a fluid seal with the torch head wall defining the torch head bore axially between the openings of the torch head preheat oxygen and fuel gas passageways to the torch head bore, said annular means being in abutting relationship to the front member rear

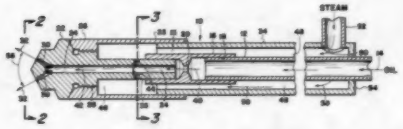
surface and having first cross bores for placing the grooved passages in fluid communication with the head fuel gas passageway and second cross bores axially spaced from the first cross bores for placing the grooved passages in fluid communication with the head preheat oxygen passageways, at least one of the stem portion, the annular means and the front member portion having an annular cut-out to define an annular fluid passageway to fluidly connect the grooved passages to the front member portion mixed gas passageways.

4,383,649

FUEL OIL ATOMIZER

Robert D. Reed; Richard R. Martin, and Hershel E. Goodnight, all of Tulsa, Okla., assignors to John Zink Company, Tulsa, Okla.

Filed Jul. 18, 1980, Ser. No. 169,993
Int. Cl.³ B05B 7/04
U.S. Cl. 239—429 **3 Claims**



1. An improved oil fuel atomizer, to provide a stream of atomized oil particles to be evaporated in the flame of a combustion zone, comprising:

(a) a burner tube, through which fuel oil is supplied under pressure;

(b) a burner head joined coaxially to the distal end of said burner tube; said burner head having a long axial bore of constant selected diameter, leading to a tip having a plurality of tip ports an orifice of smaller diameter than said burner tube and said long axial bore positioned between said burner tube and said burner head, said long axial bore being of smaller internal diameter than said burner tube; the total cross-sectional area of said tip ports being less than the cross-sectional area of said axial bore;

(c) a steam tube coaxially surrounding said burner tube, forming an annular space therebetween, and means to direct pressurized steam through said annular space;

(d) a plurality of transverse ports drilled between said annular space and said axial bore said transverse ports being in spaced radial planes, and directed inwardly and forwardly;

whereby pressurized steam will flow from said annular space through said transverse ports to mix with said pressurized oil, and said pressurized mixture of steam and oil will flow along said axial bore and through said tip ports to the atmosphere;

whereby said oil will be atomized and evaporated as it flows to atmospheric pressure out of said tip ports into the flame.

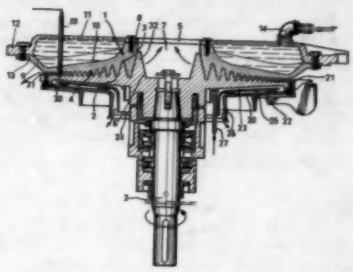
4,383,650

METHOD AND APPARATUS FOR GRINDING RUBBER

Francois Contal, Grenoble, and Jacques Maissin, Echirolles, both of France, assignors to L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude, Paris, France

Filed Aug. 5, 1980, Ser. No. 175,676
Claims priority, application France, Aug. 21, 1979, 79 21032
Int. Cl.³ B02C 7/17
U.S. Cl. 241—66 **4 Claims**

1. In a grinding apparatus comprising two toothed grinding plates cooperating face to face, one of which plates is fixed and the other of which is rotatable, with an axial supply chamber across said fixed plate and at least one injector extending through said fixed plate and emerging facing said rotating plate mounted in an intermediate radial position, and a horizontal plate secured to and disposed above said fixed plate to define between said fixed and horizontal plates a horizontally flat annular chamber for cooling water; the improvement in which said injector is a liquid nitrogen injector which comprises a



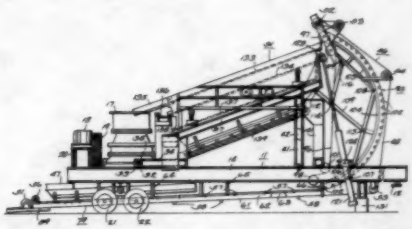
tube surrounded by and radially spaced from a thermal insulating sleeve, said sleeve extending vertically from said horizontal plate to said fixed plate and said tube passing down through said horizontal plate and fixed plate to deliver liquid nitrogen between said fixed and horizontal plates.

4,383,651

PORTABLE CRUSHING AND SCREENING PLANT

Egbert Couperus, Belleville, Canada, assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Oct. 20, 1980, Ser. No. 198,930
Int. Cl.³ B02C 23/00
U.S. Cl. 241—81 **16 Claims**



1. In a portable crushing and screening plant including an elongated trailer main frame having a front portion and a rear portion, an axle structure mounting laterally spaced wheels supporting the rear portion of the main frame, a crusher mounted on the rear portion of the main frame and a screening device, characterized by,

said screening device being disposed forwardly of said crusher and including a support frame pivotally connected at its rear end to said main frame for pivotal movement about a transverse axis between operating and transport positions, said screening device feeding oversize material to said crusher,

an endless belt conveyor mechanism including

a fixed position section secured to and beneath said main frame, and

an elevating section at the front end of said main frame generally forward of said screening device including

an upwardly extending bottom segment having its lower end pivotally connected to said main frame for vertical swinging movement about a transverse pivot axis between an upright operating position and a lowered transport position,

a generally upright top segment pivotally connected at its lower end to the upper end of said bottom segment

for vertical swinging movement between a raised operating position and a lowered transport position, and

means connecting said segments to said support frame of said screening device whereby said segments are moved from their respective transport positions to their respective operating positions when said screening device is moved from its transport position to its operating position, and

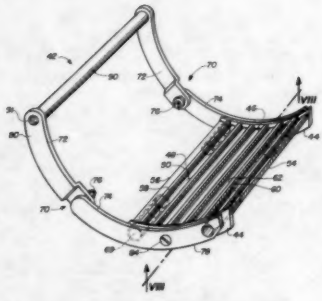
power means operatively interposed between said trailer main frame and said screening device operable to move said screening device about its pivot connection with said main frame from its lowered transport position to its raised operating position.

4,383,652

SHREDBAR APPARATUS

Donald L. Osborne, Quarryville; Joe E. Shriver, and John R. McClure, both of New Holland, all of Pa., assignors to Sperry Corporation, New Holland, Pa.

Filed Apr. 20, 1981, Ser. No. 255,412
Int. Cl.³ B02C *18/06*
U.S. Cl. 241—88.4 **6 Claims**



1. A reversible shredbar apparatus comprising:

a pair of spaced endplates;

a face plate interconnecting said end plates;

a plurality of crop material abrading ribs on a first face of said face plate, said abrading ribs extending from a first to a second one of said end plates;

a first pair of pin receiving tubes connected to a second face of said face plate and abutting said first end plate, said first end plate having a pair of apertures formed therein in alignment with said first pair of tubes;

a second pair of pin receiving tubes connected to said second face and abutting said second end plate, said second end plate having a pair of apertures formed therein in alignment with said second pair of tubes;

a pair of arcuate members each having a first and a second end, said end plates connected between said arcuate members adjacent said first end, each of said arcuate members having an aperture therein adjacent said first end;

means for releasably connecting either of said first and second end plates to said first end of either of said arcuate members for aligning said aperture in each of said arcuate members with one of said apertures of said pairs formed in said end plate;

a tubular member fixedly interconnected between a second end of each arcuate member, each of said arcuate members second ends having an aperture formed therein in alignment with said tubular member; and

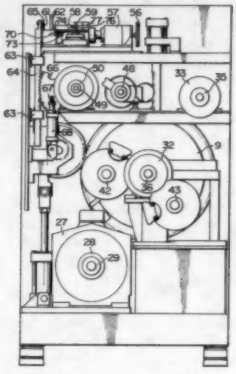
each of said arcuate members is divided into two arcuate sections, each section being pivotally interconnected between said first and second ends.

4,383,653

TRAVERSE MOTION USED IN COMBINATION WITH DEVICE FOR WINDING A CONTINUOUS ELONGATE ELEMENT

Koji Nakazawa; Michio Sato; Shin Kasai; Yutaka Kawaguchi, and Toshiaki Kikuchi, all of Fukushima, Japan, assignors to Nitto Boseki Co., Ltd., Fukushima, Japan

Filed Oct. 3, 1980, Ser. No. 193,412
Claims priority, application Japan, Oct. 8, 1979, 54-129640
Int. Cl.³ B65H *54/28*
U.S. Cl. 242—43 R **3 Claims**



1. A traverse motion used in combination with a motor and a device for winding a continuous elongate element around a spool, of the type having a scroll cam consisting of a rotatable cylindrical body disposed in parallel with said spool and an endless cam groove consisting of at least one pair of right- and left-hand helical grooves cut in the peripheral surface of said cylindrical body and joined at both ends thereof, a cam follower fitted into said helical grooves of said scroll cam and guided to be reciprocable along a path in parallel with the axis of said scroll cam when the latter is rotated, and guide means connected to said cam follower for traversing said continuous elongate element, in which the lead angle of said helical groove is increased over a predetermined distance adjacent to each end thereof, each end portion of said helical groove with the increased lead angle being in a straight line in the development thereof, said traverse motion further comprising a plate cam rotatable at a predetermined speed by said motor, a rack arranged for linear movement with a cam follower mounted thereon and cooperating with said plate cam, a sector gear being made to mesh with said rack, and a supporting arm operatively connected to said sector gear to rotate in unison with the latter and supporting at its free end said scroll cam, said plate cam having such a cam shape that during winding operation of said spool to form a package therearound, said scroll cam is retracted from the axis of said package with rotation of said plate cam while maintaining a predetermined distance between said scroll cam and the peripheral surface of said package being increased in its diameter.

4,383,654

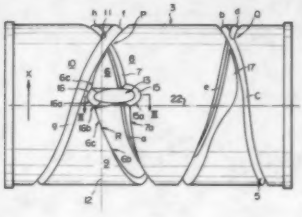
TRAVERSE DRUM FOR WINDING MACHINE

Shuzo Kawamura, Joyo, Japan, assignor to Murata Kikai Kabushiki Kaisha, Kyoto, Japan

Filed Jul. 6, 1981, Ser. No. 280,461
Claims priority, application Japan, Jul. 4, 1980, 55-91865
Int. Cl.³ B65H *54/28, 54/48*
U.S. Cl. 242—43.2 **3 Claims**

1. A traverse drum for use in a winding machine, said drum having a body of substantially circular cylindrical shape with an axis, wherein said drum has an endless guide groove means

extending about and along a peripheral surface of said drum body, said guide groove means comprising a shallow groove and a deep groove with said shallow groove being cut and traversed by said deep groove at a crossing zone, with said deep groove being continuous, and wherein said shallow groove has two side walls with different angles of inclination, and wherein a top edge of one of said side walls of said shallow groove having a smaller angle of inclination, is disposed



toward said deep groove and beyond a plane located perpendicular to said axis and extending from said shallow groove at substantially the area where said shallow groove is cut and traversed by said deep groove, and wherein said drum further comprises a wound yarn removing notch having at least one side wall, said notch being on said shallow groove with a top edge of said side wall of said notch, traversing said top edge of said shallow groove side wall.

4,383,655

YARN STORAGE DEVICE

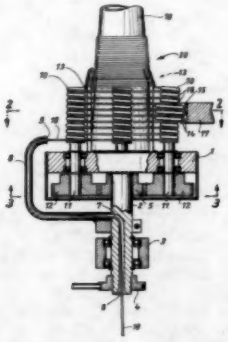
Gerhard Ahrendt, Hohentengen; Roland Benz, Denkendorf; Reinhold Engenhart, Blochingen, and Viktor Schmidt, Sauigau, all of Fed. Rep. of Germany, assignors to Lucke Apparate-Bau GmbH, Mengen, Fed. Rep. of Germany

Filed Apr. 7, 1981, Ser. No. 251,725

Claims priority, application Fed. Rep. of Germany, Apr. 16, 1980, 3014596

Int. Cl.³ B65H *51/20, 51/22*

U.S. Cl. 242—47 **4 Claims**



1. A storage device for yarns having intrinsic elasticity comprising a stationary bearing plate, a plurality of screw spindles extending substantially vertically and being held at their lower ends on the bearing plate, drive means for rotating each screw spindle about its own axis, said screw spindles being spaced around a circle, a lap flyer rotatable about said spindles for applying loops of yarn around said spindles, guide means extending vertically between the screw spindles and being held at their lower ends on the bearing plate, and an upwardly conically tapering drum with a smooth outer wall arranged concentrically to and within said circle, the upper free ends of the guide means being angled and directed to said drum, the arrangement being such that said loops of yarn around said spindles are successively transferred from the upper ends of said spindles onto said angled ends of the guide means and onto said drum and are pushed upwardly by subsequently transferred loops of yarn.

4,383,656

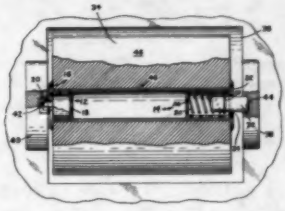
MOUNTING ASSEMBLY FOR A ROLL OF SHEET MATERIAL

Eugene T. Campbell, 125 N. Leswing Ave., Saddle Brook, N.J. 07662

Filed Oct. 7, 1981, Ser. No. 309,226

Int. Cl.³ B65H *19/00*

U.S. Cl. 242—55.2 **10 Claims**



1. A mounting assembly for positioning a roll of sheet material within a dispenser including oppositely aligned receiving sockets wherein said roll of sheet material is formed on a hollow core, which comprises:

(a) a first arbor member formed of a flange member, a core insertion member mounted on said flange member and a socket insertion member positioned on said flange member on a side opposite said core insertion member; and

(b) a second arbor member comprised of a flange member having an orifice mounted to a core insertion member having a chamber, a socket insertion member including a collar disposed within said chamber of said core insertion member and having an end thereof extending through said orifice of said flange member and a spring disposed in said chamber between an end portion of said core insertion member and said socket insertion member.

4,383,657

DISPENSER FOR PRODUCTS IN SHEET FORM

Pierre K. S. Suh, 5, residence des Trois Forets, Bougival (Les Yvelines), France

Filed Mar. 17, 1981, Ser. No. 244,781

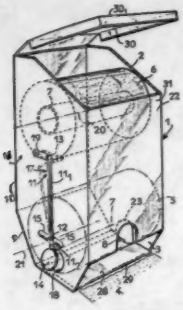
Claims priority, application France, Mar. 19, 1980, 80 06106

Int. Cl.³ B65H *19/04*

U.S. Cl. 242—55.3 **14 Claims**

1. A dispenser for sheet material wound in the form of a reel on a tube, comprising a casing formed with a top portion having a loading aperture, a back wall, a front wall, a pair of sides and a base having a dispensing slot therein, said casing being adapted to contain at least two superimposed reels of sheet material wound on tubes, said reels being disposed axially horizontally with a bottom reel at the base of the casing and the other in reverse above the bottom reel, stop means at one side of the casing comprising a rocking lever provided with a lug for supporting the top reel and a press-button operable from outside the casing to retract said lug and release the top reel when the bottom reel is empty and adapted at the same time to be applied against the bottom reel, means for positioning the tube of the bottom reel in an end position for ejection when

empty, and ejection means in cooperation with the press-button controlling the lug and in registration with said positioning



means for permitting ejection of said tube only when said tube is in said end position.

4,383,658

SEAT BELT RETRACTING AND WINDING DEVICE

Masayuki Morita, Tokoname; Takashi Kawaharazaki, Ichinomiya, and Toshiaki Shimogawa, Nishio, all of Japan, assignors to Nippon Soken, Inc., Nishio, Japan

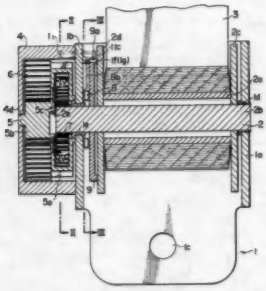
Continuation of Ser. No. 787,534, Apr. 14, 1977, Pat. No. 4,310,128, which is a continuation of Ser. No. 656,850, Feb. 10, 1976, abandoned. This application Dec. 22, 1981, Ser. No. 333,405

Claims priority, application Japan, Feb. 18, 1975, 50-20673; Aug. 9, 1975, 50-96771; Aug. 9, 1975, 50-96775

The portion of the term of this patent subsequent to Jan. 12, 1998, has been disclaimed.

Int. Cl.³ A62B *35/02;* B65H *75/48*

U.S. Cl. 242—107 **5 Claims**



3. A safety belt retractor having a safety belt wound upon a spool rotatably journaled in a retractor frame comprising:

first belt retraction biasing means for biasing said spool in a belt rewind direction;

means for selectively blocking out the bias of said first biasing means; and

a second biasing means for biasing said spool in a belt rewind direction,

wherein said means for selectively blocking out the bias of said first biasing means includes means operable in response to a slight retraction movement of said spool following unwinding of said belt to a position of use for blocking out the bias of said first biasing means.

4,383,659

LOCKING DEVICE FOR SAFETY SEAT BELTS

Shinichi Okabe, Fujisawa, Japan, assignor to Nippon Seiko Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 2, 1981, Ser. No. 239,498

Claims priority, application Japan, Mar. 15, 1980, 55-33133

Int. Cl.³ A62B *35/02;* B65H *75/48*

U.S. Cl. 242—107.2 **8 Claims**

1. A locking device for holding the webbing of a seat belt against movement when a retractor for the seat belt has been locked during an emergency, said device comprising a base member having a holding portion, a support member held pivotally to said base member and carrying a rotatable drum movable towards said holding portion, the webbing of said seat belt extending from said retractor and partially around said drum whereby upon locking of said retractor during an emergency continued tension on said seat belt pivots said support member towards said holding portion to hold said webbing between said drum and said holding portion, and co-acting means formed on said base member and said support member for locking said drum against rotation as a result of the pivotal movement of said support members towards said holding portion, said co-acting means including an engagement member formed integrally with said drum for rotation therewith, a lock member mounted to said base member and adapted to move between a first position engaging said engagement member for holding said drum against rotation and a release position allowing rotation of said drum, said lock member being biased into its first position, an actuating member mounted on said support member for moving said lock member between its two positions, and actuation means secured to said base member for engaging said actuating member to move said lock member into its engagement position as a result of pivotal movement of said support member towards said holding portion.

4,383,660

SINGLE REEL TAPE CARTRIDGE WITH LEADER BLOCK DOOR SEAL

Maurice E. Richard, and Helfried O. Rinkleib, both of Tucson, Ariz., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Mar. 30, 1981, Ser. No. 249,266

Int. Cl.³ G03B *1/04;* G11B *15/32*

U.S. Cl. 242—197 **10 Claims**

1. A magnetic tape cartridge comprising:

a casing;

a single reel hub mounted for rotation within said casing;

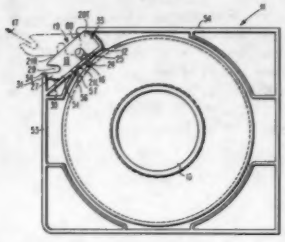
a length of magnetic tape wound on said hub;

a generally rectangular shaped leader block having the free end of the magnetic tape connected adjacent to its trailing surface and a leading surface adapted for connection to a device adapted for pulling said leader block and thereby unwinding said magnetic tape from said hub; and

a leader block receiving well formed in a corner of said casing and including a window opening through which said magnetic tape passes as said leader block is moved

away from the casing and said receiving well by the device;

said well including bottom and side surfaces defining said window opening and further including opposed surfaces forming a part of said casing to which said bottom and side



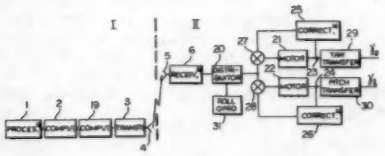
surfaces are attached for engaging the leading and trailing surfaces of said leader block in a clamping relationship such that a side surface and said trailing surface of said leader block cover said window opening to substantially seal said magnetic tape from external contamination.

4,383,661

FLIGHT CONTROL SYSTEM FOR A REMOTE-CONTROLLED MISSILE

Philippe Ottenheimer, and Pierre Haon, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Jun. 23, 1980, Ser. No. 162,303
Claims priority, application France, Jun. 27, 1979, 79 16559
Int. Cl.³ F41G 7/28
U.S. Cl. 244—3.14 **5 Claims**



1. A system for controlling the flight of a missile provided with actuators affecting its course, comprising:

a ground section including a first computer supplying guidance instructions on the basis of initial data available at launching time, a second computer receiving said guidance instructions from said first computer and converting same into control signals for the actuators aboard the missile, and transmission means connected to said second computer for sending out said control signals;

receiving means aboard the missile in radio communication with said transmission means for detecting said control signals; and

circuit means aboard the missile connected to said receiving means for translating said control signals into operating commands for said actuators.

4,383,662

IDEAL TRAJECTORY SHAPING FOR ANTI-ARMOR MISSILES VIA GIMBAL ANGLE CONTROLLER AUTOPILOT

Robert E. Alongi; Robert E. Yates, and John P. Leonard, all of Huntsville, Ala., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Mar. 13, 1978, Ser. No. 885,721
Int. Cl.³ F41G 7/00
U.S. Cl. 244—3.15 **3 Claims**

1. A missile guidance system for maintaining a missile in a predetermined trajectory to impact with a target, said trajectory including an initial substantially horizontal portion, pitch-up, cruise and attitude transition portions, said guidance system including:

(a) programmed guidance means for controlling said missile to said attitude transition portion subsequent to flight in said horizontal, pitch-up, and cruise portions of said trajectory;

(b) a seeker carried by said missile for tracking said target;

(c) means carried on said missile for determining the angle between the line of sight of said seeker and the body of the missile and for transmitting a signal when said angle reaches a predetermined value said means being a threshold detector, first and second switches disposed in the pitch rate and gimbal angle channels of said seeker, said threshold detector disposed for closing said switches; and

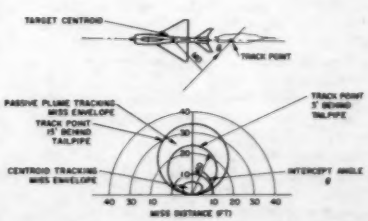
(d) autopilot means disposed for receiving said signal to pitch said missile downwardly for impact with said target responsive to said angle reaching said predetermined value.

4,383,663

ACTIVE OPTICAL TERMINAL HOMING

Roy L. Nichols, Ridgecrest, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jun. 1, 1976, Ser. No. 690,207
Int. Cl.³ F41G 7/22
U.S. Cl. 244—3.16 **7 Claims**



1. A dual mode coaxial passive/active homing missile guidance system incorporating a long range passive conical scan seeker which tracks an aircraft plume and an automatic handoff to a boresighted coaxial active optical terminal homing guidance mode when an active optical subsystem acquires active returns from a target to accomplish centroid tracking of a target wherein said active optical subsystem comprises:

transmitter means for outputting a optical source of radiation;
beam forming scanning optics boresighted with said primary missile seeker in line with said optical source of radiation;
receiver means adapted to receive radiation reflected from a target which has been illuminated by said transmitted radiation;
range gating means operatively coupled to said receiver means;
timing means operatively outputting a signal to said transmitter means and said range gating means to effectively cause said range gating means to pass received radiation corresponding to a particular region in space;
centroid sensing means operatively coupled to the output of said range gating means for determining the centroid of said target;
wherein said centroid sensor means outputs signals corresponding to missile steering signals which are used to cause the missile to be steered to the centroid of the target;
said active optical terminal homing system being operative to acquire and track the target during the terminal phase of an encounter with the target.

4,383,664

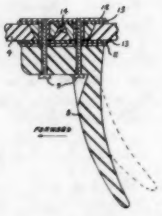
VIBRATION SUPPRESSING TRUNK FINGERS FOR AIR CUSHION DEVICES

David J. Perez, Xenia, Ohio, assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Continuation of Ser. No. 833,777, Sep. 16, 1977, abandoned. This application Sep. 1, 1978, Ser. No. 938,993

Int. Cl.[3] **B60V** *3/08, 1/16;* **B64C** *25/32*

U.S. Cl. 244—100 A **4 Claims**



1. In an aircraft mounted air cushion takeoff and landing system of the type using an inflatable trunk as the confining means for the air cushion, the improvement which comprises:
(a) multiple flexible noninflatable finger-like protrusions; and
(b) means for attaching each of said protrusions to the bottom of the trunk such that said each protrusion extends downward when the trunk is in an inflated state to a distance sufficient to make intermittent contact with the surface beneath and suppress vertical aero-mechanical vibrations in the trunk;
(c) said protrusions being sufficiently spaced relative to each other to allow unobstructed flow of leakage air from the cavity formed by the trunk;
(d) said attaching means including
(i) a pair of metal backing plates disposed on opposite inner and outer sides of the material of the trunk,
(ii) a pair of fasteners being threaded into the one plate on said inner side of said trunk material for attaching said each protrusion to the other plate on said outer side of said trunk material, and
(iii) a pair of spacers inserted about said fasteners between said plates and received through holes in said trunk material for maintaining mechanical communication between the trunk material and said each protrusion so as to maintain the latter in a downward orientation when the trunk is in an inflated state in which the cross-sectional thickness of its material is reduced.

4,383,665

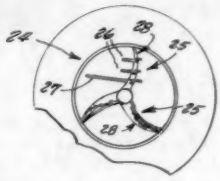
WIND-DRIVEN ROTATING AIRCRAFT LANDING WHEELS

Ewen M. Maclean, c/o George Spector, 3615 Woolworth Bldg., 233 Broadway, and George Spector, 3615 Woolworth Bldg., 233 Broadway, both of New York, N.Y. 10007

Continuation-in-part of Ser. No. 674,114, Apr. 6, 1976, abandoned. This application Jun. 9, 1980, Ser. No. 157,671

Int. Cl.[3] **B64C** *25/40*

U.S. Cl. 244—103 S **2 Claims**



1. An improved, wind-driven, rotating aircraft landing wheel comprising in combination, a wheel member having a rim with a tire and a hub projecting from one side of said wheel member in combination with spaced curved arms extending radially from said hub and a plurality of flexible fins each being supported pivotally free on pivot pins eccentrically mounted on each of said arms, each of said flexible fins being normally flat and projecting from said pins, means for bending said flexible fins in curvate locked extended radial positions responsive to wind pressue when said fins are below a horizontal axis of said hub, said flexible fins pivoting on said pins so as to remain flat above the horizontal axis of said hub, and in further combination with shorter auxiliary fins mounted pivotally on said arms at points spaced outwardly from said pins, whereby the first said fins overlap the auxiliary fins when in the locked radially extended position.

4,383,666

SAFETY CONSTRUCTION FOR AIRCRAFT

Volker Allerding, Bremen; Heinz Borchers, Twistringen, and Hermann Schellstede, Stuhr, all of Fed. Rep. of Germany, assignors to Vereinigte Flugtechnische Werke GmbH, Bremen, Fed. Rep. of Germany

Filed Mar. 23, 1981, Ser. No. 246,875

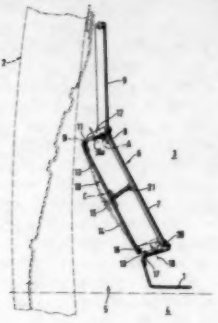
Claims priority, application Fed. Rep. of Germany, Mar. 22, 1980, 3011109

Int. Cl.[3] **B64D** *13/00;* **F23L** *17/00*

U.S. Cl. 244—118.5 **9 Claims**

1. A safety structure for an airplane, having its interior divided by an intermediate floor, separating an upper compartment from a lower compartment, the compartments being normally at similar air pressure, there being openings in the intermediate floor, the improvement for covering each of the openings, comprising:
first and second individually hinged flap means, the first flap means facing the upper compartment, the second flap means being located behind the first flap means, there being a space between the first and second flap means;
tension spring means interconnecting the first and second flap, tending to pull the second flap toward the first flap; and
locking means on the second flap means for locking the first flap means in a position for closing said opening, said spring means holding the second flap in a position for

obtaining said locking, low pressure acting upon the second flap outside said space tending to release the locking



means as against a force of the spring means to, thereby, unlock the first flap.

4,383,667

KITE HAVING HIGH LIFT TO DRAG RATIO

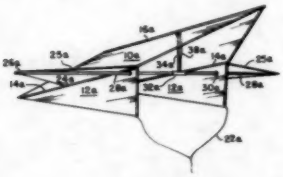
Warren O. Weathers, 17707 S. E. Howard St., Milwaukie, Oreg. 97222

Continuation-in-part of Ser. No. 82,869, Oct. 9, 1979, Pat. No. 4,262,866. This application Oct. 14, 1980, Ser. No. 197,004

The portion of the term of this patent subsequent to Apr. 21, 1998, has been disclaimed.

Int. Cl.³ B64C *31/06*

U.S. Cl. 244—153 R **9 Claims**



1. A kite comprising a central section of flexible material having a substantially arrow-head configuration;

outer longerons extending respectively along the sides of said central section and a central longeron extending along the center of said central section;

triangular-shaped wings of flexible material extending along the respective sides of said central section;

triangular-shaped keels having bases thereof extending along the respective sides of said central section, apexes of said keels extending downwardly and adapted to have ends of bridle means secured thereto;

spar means having ends thereof connected to apexes of said wings; extending across said kite and through said keels to maintain said kite in a flying condition with said longerons being on one side of said spar means; and

spar pole means connected to and extending between said spar means and said central longeron to form said central section into a canopy.

4,383,668

CABLE CLAMP

Gaddis G. Hall, P.O. Box 6699, Birmingham, Ala. 35210

Filed Jun. 4, 1981, Ser. No. 270,255

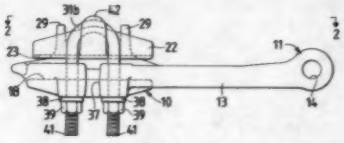
Int. Cl.³ F16L *3/00*

U.S. Cl. 248—63 **2 Claims**

1. In a cable clamp having a body with a cable receiving groove therein and a clevis at one end thereof for pivotal connection to a supporting structure and a pulling eye at the other end thereof,

(a) a keeper having oppositely disposed laterally extending side portions mounted for movement in a direction substantially perpendicular to said cable receiving groove selectively to an open position spaced from said cable receiving groove and to a closed position engaging a cable in said cable receiving groove,

(b) a pair of laterally spaced U-bolts carried by said body and adapted to engage said oppositely disposed side portions of said keeper, with each said U-bolt having a base connected to spaced apart depending legs with said U-bolts extending substantially parallel to said cable receiving groove and adapted to move said keeper to said closed position with said U-bolts remaining parallel to said cable receiving groove in all positions of said U-bolts,



(c) there being laterally spaced pairs of openings through said body receiving the legs of said U-bolts with the outermost sides of one pair of said spaced apart openings extending downwardly and inwardly in position to receive the legs of one U-bolt with a loose fit and permit free outward tilting movement thereof,

(d) a spring interposed between a portion of the laterally extending side portion of said keeper located intermediate the legs of the other U-bolt and the adjacent side of said body intermediate the legs of said other U-bolt for urging said keeper toward said open position, and

(e) a projection carried by said adjacent side of said body in position to receive the adjacent end of said spring and there being a recess in the adjacent side portion of said keeper in position to receive the other end of said spring.

4,383,669

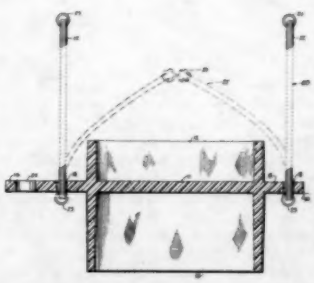
INVERTIBLE DUAL CARRIER FOR LADDER-TOP USE

Raymond E. Rasler, E. College Ave., R.R. #2, Greenville, Ill. 62246

Filed Mar. 13, 1981, Ser. No. 243,638

Int. Cl.³ E06C *7/14*

U.S. Cl. 248—210 **3 Claims**



1. An invertible dual carrier adapted to be formed by molding in a mold split along a parting plane, comprising

a substantially planar common wall in such mold parting plane,

a rectangular array of retaining projections extending from each surface of said common wall, the said arrays being

opposite each other and so arranged that the inner surfaces of said projections define a rectangle having two longer sides and two shorter sides spaced as to fit securely over such ladder top step,

whereby when the said planar common wall is held horizontally and rested atop such a ladder, the downward-extending projections will bound the outer edge of such ladder top step while the upward projections will define a generally rectangular carrier tray,

the height of said projections on one side of said common wall being greater than the height of those of the other,

whereby on inverting to provide a second carrier tray whose depth differs from that of such first carrier tray,

said common planar wall having sideward extension portions along both the longer sides thereof outward of said projections, and

bores therethrough extending from both sides to such parting plane,

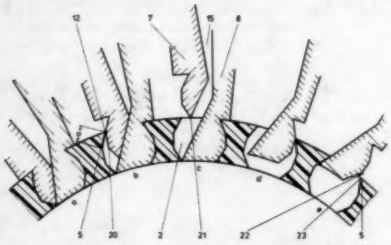
whereby handles may be so attached through some of said bores as to be grasped from either side of said common planar wall, and tools may be carried by insertion through others of said bores.

4,383,670

METHOD AND APPARATUS FOR CASTING OR INJECTION-MOLDING OF CAGES OF CYLINDRICAL ROLLING ELEMENTS

Armin Olschewski, Schweinfurt; Manfred Brandenstein, Wussenheim; Lothar Walter; Heinrich Kunkel, both of Schweinfurt; Herbert Dobhan, Bergrheinfeld; Peter Horling, Mainberg, and Norbert Klupfel, Hambach, all of Fed. Rep. of Germany, assignors to SKF Kugellagerfabriken GmbH, Schweinfurt, Fed. Rep. of Germany

Division of Ser. No. 210,217, Nov. 25, 1980, Pat. No. 4,362,687.
This application Aug. 10, 1981, Ser. No. 291,414
Claims priority, application Fed. Rep. of Germany, Dec. 7, 1979, 2949251
Int. Cl.³ B29C *1/14*
U.S. Cl. 249—60 **9 Claims**



1. In an apparatus for casting or injection-molding cages which have retaining projections for retaining cylindrical rolling elements, the projections being provided on both the inside and outside of the cage along the lateral surfaces of the webs located between the cage pockets, wherein the width of said pockets is less than their radial height and, wherein said apparatus has only two mold slides per pocket, the slides being retractable from the pockets and, when in the inserted position, engage one another along an inclined partition edge, the slides having lateral surfaces facing away from one another that have shapes equivalent to the shape of the corresponding lateral surfaces of the webs; the improvement wherein said partition surface of the two mold slides per pocket is shaped, over part of the length of each of the slides for each pocket, to be inclined at an angle α' with respect to the center plane of the pocket which extends through the axis of the cage, this angle α' being greater than the angle α between the tangent of the retaining projection at the outermost point and said pocket center-plane, and wherein said two mold slides are mounted to be removable from the same side of the respective pocket.

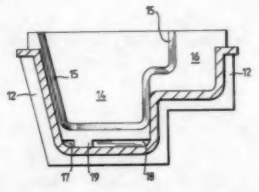
6. An apparatus for molding or casting an element having webs between a plurality of adjacent pockets, the width of said pockets being less than their radial height, said apparatus comprising, for each pocket, a first slide having a one end side with a shape corresponding to the shape of one side of a pocket, the opposite side of said one end being planar and inclined to the central plane of said pocket between the two lateral sides thereof, and a second slide having one end side planar and engaging the said planar end of the said first slide, and an opposite end side shaped to form the other side of the respective pocket, the inclination of said planar end sides and the shape of the said opposite end side of the second slide, permitting said second slide to be slid out of a formed pocket along said planar end surfaces of the two slides, to a point permitting direct removal thereof in the direction of the said center plane, said first slide being mounted to be removable from the pocket in the same direction as said second slide.

4,383,671

MOULDING TOOL

Bengt Persson, Kinne Vedum, Sweden, assignor to Br. Perssons Cementvarufabrik AB, Sweden

Continuation of Ser. No. 124,673, Feb. 26, 1980, abandoned.
This application Jul. 2, 1981, Ser. No. 280,031
Claims priority, application Sweden, Mar. 1, 1979, 7901845
Int. Cl.³ B28B *7/20*
U.S. Cl. 249—66 R **3 Claims**



1. A moulding tool for moulding an elongated article from concrete in a mould cavity and allowing the article to be removed from said mould cavity before hardening of the concrete, said tool comprising a unitary, substantially rigid main body member having therein an elongated, open-ended recess forming a three-sided, elongated cavity, with a groove in the three sides of said cavity adjacent each open end of said recess; and a pair of end members, each end member received in one of said grooves to close the adjacent end of said recess to define an open-sided mould cavity for moulding an elongated article, said end members being slidably displaceable in said grooves; each end member having at least one notch passing therethrough at the edge thereof, adjacent the bottom of said main body member, and in a position to be covered by said main body member when said end member is fully received in the respective groove and to be exposed as said end member is slidably displaced in said groove so that as said end members are slidably displaced with slight initial bending of the adjacent end portions of the article, air is admitted between the article and said body member to release the article from said mould cavity, with the article being removable out the open side of said mould cavity by movement in a direction parallel to the direction of displacement of said end members.

4,383,672

MOLD TOOLING FOR THE MANUFACTURE OF THERMOPLASTIC PARTS

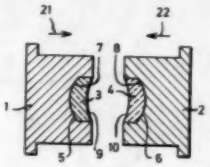
Albert Kreuttner, Aalen, Fed. Rep. of Germany, assignor to Carl Zeiss-Stiftung, Oberkochen, Fed. Rep. of Germany

Filed Mar. 17, 1982, Ser. No. 359,059

Claims priority, application Fed. Rep. of Germany, Mar. 31, 1981, 3112751

Int. Cl.³ B29C *1/00*; B29D *11/00*; B29F *1/00*

U.S. Cl. 249—134 11 Claims



1. A mold for the manufacture of parts of thermoplastic material, said mold consisting of two die elements each of which is developed as support for a force plug, and the facing surfaces of said plugs determining the shape of the part to be produced, characterized by the fact that the surface (7, 8) of each force plug (3, 4) which faces the die element (1, 2) and that the surface (5, 6) of the force (1, 2) which serves to receive said plug (3, 4) are both developed as polished spherical surfaces of the same radius.

4,383,673

DUMMY LENS FOR MOLDED-TO-SHAPE EYEGLASS FRAME FRONTS AND MOLDS THEREFOR

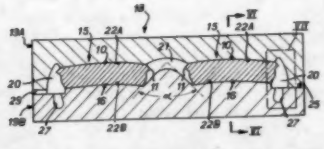
Gerard Laprade, St. Maur; Jean-Pierre Marouby, Bobigny, and Charly Bertin, Issy-les-Moulineaux, all of France, assignors to Essilor International, Cie Generale d'Optique, Creteil, France

Filed Dec. 23, 1980, Ser. No. 220,149

Claims priority, application France, Dec. 28, 1979, 79 31919

Int. Cl.³ B29C *1/00*; B29D *11/00*; B29F *1/00*

U.S. Cl. 249—142 8 Claims



1. A dummy lens for a mold for an eyeglass frame front, the dummy lens being of the kind having a disc with a periphery having an annular ridge having inner and outer diameters and being adapted to form a groove, the improvement wherein the dummy lens has an axial projection on one side only of the disc set back from the periphery thereof, said projection having a diameter at said disc corresponding to said inner diameter of said ridge, and said projection having a peripheral surface in the form of a mold surface.

4,383,674

CORE BODY FOR THE RECESSED POSITIONING OF AN ANCHOR ELEMENT IN A CONCRETE MEMBER

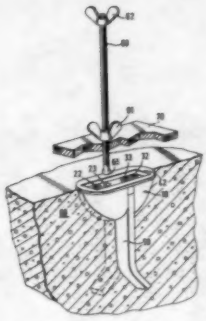
Siegfried Fricker, Wurmbergerstrasse 30-34, 7135 Wiernsheim, Fed. Rep. of Germany

Filed Oct. 5, 1981, Ser. No. 308,566

Claims priority, application Fed. Rep. of Germany, Oct. 4, 1980, 3037596

Int. Cl.³ B28B *7/04*

U.S. Cl. 249—177 13 Claims



1. A core body assembly for the creation of an oblong arcuate recess in a face of a prefabricated concrete member and for the simultaneous positioning of an embedded anchor element in such a way that an eye portion of the anchor element is located in the center of said recess and below said face, the core body assembly comprising in combination:

two inner core body parts of a combined shape which is similar in outline but smaller in dimensions than the shape of the desired recess, the inner core body parts being molded of a comparatively rigid and resistant material;

a core body jacket enveloping substantially all surface portions of the inner core body parts, the core body jacket being molded of a comparatively flexible material, having an outer shape which represents the spatial negative of the desired recess; and

means for releasably attaching the core body assembly to a formwork surface in such a way that a clamping action is exerted between the formwork and at least one of the inner core body parts; and wherein

the core body jacket has an oblong rim defining the outline of a flat attachment face on the inner side of the core body assembly;

the core body jacket further forms a transverse connecting bridge in the vicinity of the attachment face, the connecting bridge serving as a bending hinge between two halves of the core body assembly which envelop the two inner core body parts;

the core body assembly forms a transverse anchor retaining groove of which the outer side of the connecting bridge constitutes the bottom, the anchor retaining groove having opposing anchor positioning flanks; and

the anchor positioning groove includes means for positively positioning and clamping the eye portion of an anchor element when the core body assembly is attached to a formwork surface.

4,383,675

QUICK-RELEASE ATTACHMENT FOR CORE BODY IN CONCRETE CASTING FORMWORK

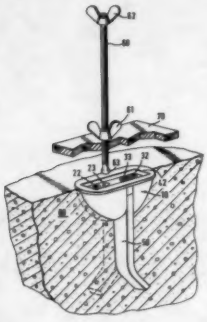
Siegfried Fricker, Wurmbergerstrasse 30-34, 7135 Wiernsheim, Fed. Rep. of Germany

Filed Oct. 5, 1981, Ser. No. 308,567

Claims priority, application Fed. Rep. of Germany, Oct. 4, 1980, 3037595

Int. Cl.³ B28B 7/04

U.S. Cl. 249—177 **6 Claims**



1. A core body for the creation of an oblong arcuate recess in a face of a prefabricated concrete member and for the simultaneous positioning of an embedded anchor element in such a way that an eye portion of the element is located in the center of said recess and below said face, the core body comprising:

a core body of a shape which represents the spatial negative of the desired recess, the core body having an attachment face for clamping contact with a formwork surface;

a central opening in the core body for the engagement therein of the eye portion of the anchor element in such a way that the core body carries the anchor element; and

means for releasably attaching the core body to the formwork surface; and wherein

the attaching means includes, as part of the core body, a bayonet lock plate with a non-circular bore, and an elongated fastener member having on one extremity thereof an enlarged bayonet lock head of a cross section which matches the non-circular bore of the lock plate so that the lock head of the fastener member is insertable through the lock plate, when aligned therewith, but is not retractable when rotated out of alignment, following insertion, thus creating a releasable bayonet-type connection.

4,383,676

RAILING SYSTEM

Thomas Souza, Jr., Box 579, 145 Hekili St., Kailua, Hi. 96734

Filed Oct. 13, 1981, Ser. No. 310,775

Int. Cl.³ E04H 17/14, 17/16

U.S. Cl. 256—59 **7 Claims**

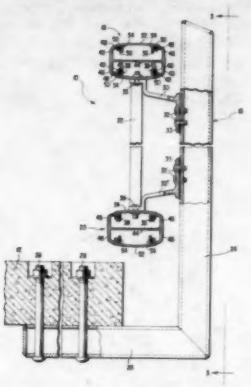
1. A railing system adapted for use adjacent the edge of a masonry floor, said railing system comprising:

(a) at least one L-shaped post means having a vertical section and a horizontal section at the lower end thereof extending perpendicular to said vertical section, said horizontal section adapted to extend a distance beneath said masonry floor,

(b) means adapted to secure said horizontal section to said masonry floor,

(c) an elongated top rail secured intermediate the ends thereof to said vertical section,

(d) an elongated bottom rail secured intermediate the ends thereof to said vertical section, said top and bottom rails being spaced apart and parallel to each other, and



(e) a plurality of spaced apart picketts extending between and secured at the ends thereof to said top and bottom rails.

4,383,677

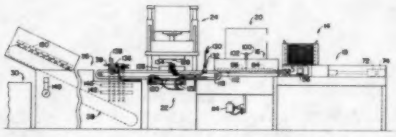
BLADE FABRICATING PROCESS

Russell H. Kerr, Horicon, Wis., assignor to Deere & Company, Moline, Ill.

Division of Ser. No. 38,385, May 14, 1978, Pat. No. 4,321,097. This application Nov. 23, 1981, Ser. No. 323,837

Int. Cl.³ C21D 7/14

U.S. Cl. 266—87 **20 Claims**



1. Apparatus for fabricating mower blades or like articles from substantially flat, relatively thin metal workpieces having longitudinal axes, comprising:

means for automatically indexing the workpieces one after the other along a path in the direction of their longitudinal axes;

an induction heater located adjacent the path and having a longitudinal axis substantially parallel to the axes of the workpieces, the heater in substantially parallel to but spaced from one side of a workpiece indexed adjacent thereto;

supply means for supplying alternating current to the induction heater to provide a time-varying magnetic flux to one side only of the workpiece adjacent the heater and heat the workpiece above the curie temperature of the metal;

means responsive to the heating of said workpiece adjacent the heater and operably associated with the automatic indexing means for causing the latter to move the heated workpiece away from the heater after reaching a temperature above the curie temperature throughout;

press means for receiving and shaping the heated workpiece;

means for automatically positioning the heated workpiece in the press means;

a medium for quickly cooling the shaped workpiece; and

means moving the shaped workpiece substantially edgewise

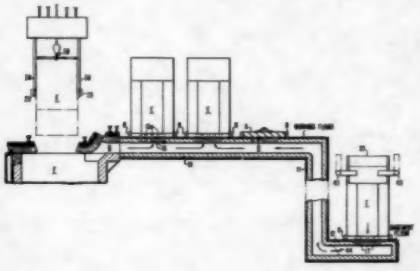
through the medium for reducing differential cooling of opposite faces of the workpiece.

4,383,678

ELECTRIC FURNACE SCRAP HANDLING MILL LAYOUT

Levi S. Longenecker, 61 Mayfair Dr., Pittsburgh, Pa. 15228

Filed Oct. 1, 1981, Ser. No. 307,187
Int. Cl.³ C22B 1/00
U.S. Cl. 266—142 20 Claims



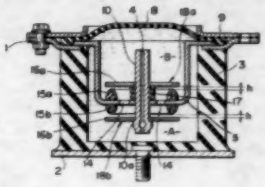
1. A mill layout for using preheated scrap material to charge a metal working furnace which comprises, an upright metal melting furnace having an open mouth portion provided with a removable roof portion for charging the furnace and having a side-positioned refractory-lined smoke hole portion, a ductway pad extending from said smoke hole portion and defining an operating line extending longitudinally forwardly therefrom, a hot effluent-receiving duct connected at one end to said smoke hole portion and extending in a separated substantially parallel relation with respect to said effluent-receiving duct along said ductway pad, a plurality of refractory-lined scrap buckets having a total scrap capacity for one heat to fully scrap-charge the furnace, a loading station for progressively filling each bucket at an outer end of said operating line with scrap material, a series of preheating stations along said ductway pad, each of said preheating stations being adapted to receive a scrap bucket thereon, each of said preheating stations having outport means open from said effluent-receiving duct and inport means open from said exhaust duct, each said scrap bucket being divided into a pair of scrap-receiving and hot-effluent-circulating endwise upwardly connected chambers, each said bucket being adapted to be positioned in an aligned relation on one of said preheating stations and having a bottom wall provided with hot-effluent receiving inport means open from the bottom of one of said chambers to align with said output means of said ductway pad at said preheating stations and enable flow of hot effluent into said one chamber and from it into the other of said chambers, each of said buckets also having output means open from the bottom of the other of said chambers to align with said inport means of said pad at each said preheating station to discharge effluent from said other chamber into said exhaust duct, and overhead means adapted to move scrap containing buckets from said loading station to said ductway pad preheating stations and to thereafter progressively lift each said bucket from its preheating station to charge its preheated scrap content into the open mouth of the furnace.

4,383,679

DAMPER FOR SUSPENSION OF AN ENGINE

Toshihiko Kakimoto, Tokyo, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Apr. 6, 1981, Ser. No. 251,455
Claims priority, application Japan, Apr. 14, 1980, 55-48987
Int. Cl.³ F16F 1/36
U.S. Cl. 267—8 R 12 Claims



1. A damper in particular for suspension of an engine on a vehicle structure, comprising

first and second armatures one of which is fixedly connected to the engine, while the other one of which is fixedly connected to the vehicle structure;

an elastic block having one end fixedly attached to said first armature and the opposite end fixedly attached to said second armature;

said elastic block and said first and second armatures defining a bore extending from said one end of said elastic block to said opposite end thereof;

a working fluid contained within said bore;

a partition plate fixed to said second armature and projecting inwardly into said bore toward said one end of said elastic block to divide said bore into a first chamber between said partition plate and said one end of said elastic block and a second chamber between said partition plate and said opposite end of said elastic block;

said partition plate having means defining an orifice providing a restricted flow communication between said first and second chambers; and

a valve including at least one valve hole formed through said partition plate, said valve having a first valve seat fixedly attached to one side of said partition plate and enclosing said at least one valve hole and a second valve seat attached to the opposite side of said partition plate and enclosing said at least one hole, said valve having a first pressure responsive valve plate disposed within said first chamber and cooperating with said first valve seat and a second pressure responsive valve plate disposed within said second chamber and cooperating with said second valve seat, said first plate being normally disengaged from said first valve seat and being engaged with said first valve seat when the pressure in said working fluid contained within said first chamber is higher than the pressure in said working fluid contained within said second chamber by a predetermined amount, said second valve plate being normally disengaged from said second valve seat and being engaged with said second valve seat when the pressure in said working fluid contained within said second chamber is higher than the pressure in said working fluid contained in said first chamber by a predetermined amount.

4,383,680

JIG FOR ASSEMBLING TABLE TOPS

Richard Braceland, Box 7793, Barry's Bay, Ontario, Canada (K0J 1B0)

Filed Nov. 25, 1980, Ser. No. 210,173
Int. Cl.³ B25B 1/20
U.S. Cl. 269—43 12 Claims

1. A jig for assembling table tops having a plurality of simi-

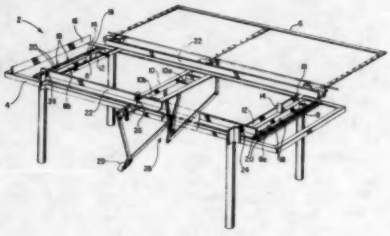
lar, elongated rectangular members secured together in aligned fashion on transverse bottom members, the jig comprising:

(a) a frame;

(b) transverse member holders secured to the frame and having bottom and side surfaces to receive and secure in parallel position at predetermined spaced locations the transverse members, the upper surfaces of the transverse members located above the side surfaces of the respective member holders at similar heights, whereby the upper surfaces of the transverse members in position in the transverse member holders lie in the same plane;

(c) alignment means secured to the frame to align one end of the top members when in assembly position on the transverse members in the transverse member holders;

(d) lateral alignment means rigidly secured to the frame at a position and in an orientation which will properly position and orient a top member with respect to its intended longitudinal axis and with respect to the transverse members, the lateral alignment means comprising two or more spaced tabs of a thickness similar to the desired spacing between adjacent top members, the tabs being longitudinally aligned in the assembly plane of the top members and precisely positioned with respect to the frame so that adjacent top members with their side surfaces abutting against the elongated sides of the tabs will be properly longitudinally oriented and laterally aligned and positioned with respect to the transverse members;



(e) clamping jaws secured to the frame, each being movable transversely with respect to the frame in the assembly plane of the top members;

(f) means to move the clamping jaws to bear against the outer sides of the outer top members, to move the top members transversely into final assembly position, and to hold them in that position for assembly, and thereafter to move the jaws apart from assembly position to permit removal of an assembled top.

4,383,681

AUTOMOBILE DOLLY

Charles J. Walters, 65850 Hartway, Romeo, Mich. 48065

Filed Jan. 5, 1981, Ser. No. 222,581

Int. Cl.³ B66F *5/04*

U.S. Cl. 269—17 **7 Claims**

1. An automobile dolly for supporting the front end of a front wheel drive vehicle during transmission repair comprising:

a base frame including a pair of spaced side members, a front cross member and a rear cross member extending between and joined to said side members to form a frame with an open center;

wheel means attached to said base frame;

a rear tubular transverse support resting upon and affixed to said spaced side members;

a pair of opposed transversely adjustable rear sleeves telescopically engageably with said rear transverse tubular support;

a rear vertical tube attached to an outer end of each rear sleeve;

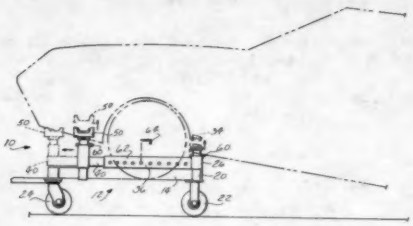
a rear support telescopingly engaged with each rear vertical tube;

a pair of longitudinal tubes, each tube overlaying a side member and disposed in parallel abutment therewith, said longitudinal tubes extending from said rear transverse support to a point short of said front cross member;

a pair of longitudinal sleeves telescopingly engageable with said longitudinal tubes;

a front transverse tube extending between said longitudinal sleeves to joint them into a U-shaped piece telescopingly engageable with said longitudinal tubes;

a pair of opposed transversely adjustable front sleeves telescopingly engageable with the ends of said front transverse tube;



a front vertical tube attached to an outer end of each front sleeve;

a front support telescopingly engaged with each front vertical tube;

means for selectively adjusting the transverse spacing of said front and rear support members;

means for selectively adjusting the height of said front and rear support members; and

means for selectively adjusting the longitudinal spacing between said front and rear support members.

4,383,682

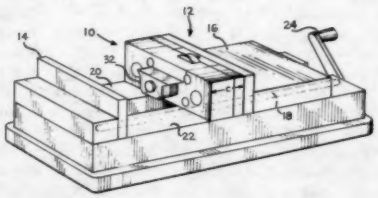
VISE JAW ASSEMBLY HAVING AN INCLINEABLE PLATFORM FOR SUPPORTING A WORKPIECE AT A SELECTED ANGLE

Howard Feinberg, 910 N. Almansor St., Alhambra, Calif. 91801

Filed Feb. 12, 1981, Ser. No. 233,733

Int. Cl.³ B23Q *1/04*

U.S. Cl. 269—76 **6 Claims**



1. An improved vise jaw apparatus for use in a vise of the type having two opposed jaws for securing a workpiece between the respective faces thereof, the improvement comprising:

a shoe having at least one planar surface forming a platform that is perpendicular to the face of said jaw apparatus and that is adapted for supporting said workpiece in proximity to said apparatus face,

a rotator substantially contained within said jaw apparatus and having a portion accessible at the exterior of said jaw

apparatus for rotation of said rotator through a selected arc,

means interconnecting said rotator and said shoe for inclining said platform through an angle corresponding to said selected arc, and

a housing having a frontplate and a backplate, said frontplate having an inset portion for receiving said rotator and a window through which said rotator accessible portion extends, said backplate having means for connection to said frontplate for enclosing said inset portion whereby said rotator is substantially enclosed.

4,383,683

APPARATUS FOR SEPARATING THE BOTTOM SHEET OF A STACK OR SHEETS

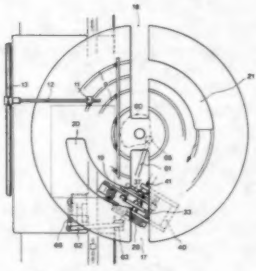
Horst Rathert, Minden, Fed. Rep. of Germany, assignor to Rahdener Maschinenfabrik August Kolbus, Rahden, Fed. Rep. of Germany

Filed Sep. 24, 1980, Ser. No. 190,415

Claims priority, application Fed. Rep. of Germany, Oct. 6, 1979, 2940669

Int. Cl.³ B65H *39/043, 3/08, 3/50*

U.S. Cl. 270—58 **15 Claims**



1. Apparatus for separating single sheets from a stack of sheets by removing one sheet at a time from the bottom of the stack, the apparatus comprising:

rotating disc means, said disc means rotating in one direction, said disc means having an upper surface upon which substantially the entire surface of the lower sheet of a stack of sheets will be supported, said disc means being provided with at least a first linear aperture defined by a pair of straight substantially parallel edges, said first aperture extending radially inwardly from the periphery of said disc means, said first aperture having sufficient length and width to allow the passage therethrough of a sheet from the stack, said disc means being further provided with at least a second aperture, said second aperture having an arcuate shape and extending from said first aperture leading edge intermediate the ends of said first aperture in the direction of disc means rotation;

stack retaining means, said stack retaining means being positioned above said upper surface of said disc means, said retaining means being stationary and positioning a stack of sheets upon said upper surface of said disc means while said disc means rotates beneath the stack, said retaining means positioning the stack upon said upper surface of said disc means so that one corner of the stack faces generally oppositely to the direction of rotation of said disc means whereby said corner will be intercepted by the straight trailing edge of said pair of first aperture defining edges;

fluidic separator means, said separator means being located beneath said disc means, said separator means being in part movable through said second aperture to cooperate with a sheet which is at the bottom of the stack in the region of said one corner, said separator means including means for establishing a pneumatic force which causes said one corner to be deflected downwardly through said first aperture during movement of said separator means to thereby provide a space between the bottom sheet and the remainder of the stack whereby the bottom sheet will be separated from the stack by the rotational movement of said disc means and passed through said first aperture;

separator control means, said control means moving said separator means through said second aperture, said control means synchronizing the movements of said separator means with the rotation of said disc means to prevent said separator means from contacting said disc means; and

means for guiding sheets separated from the stack by said separator means, said guiding means including table means and movable clamp lever means, means for causing movements of said clamp lever means, said clamp lever means temporarily holding individual sheets against said table means, said movements of said clamp lever means being synchronized with the movements of said separator means whereby a separated sheet will be clamped to said table means for a period of time beginning prior to termination of cooperation between the separator means and the sheet.

4,383,684

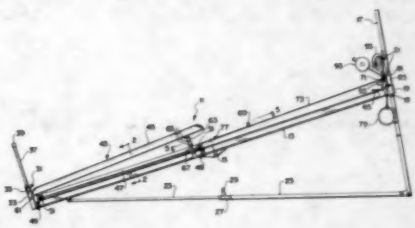
WEIGHT MOVING DEVICE

Edward J. Schliep, 3218 Twin City Dr., Mandan, N. Dak. 58554

Filed Feb. 17, 1981, Ser. No. 235,020

Int. Cl.³ A63B *21/00*

U.S. Cl. 272—120 **13 Claims**



1. An exercise device comprising:

(a) a single elongated carriage mounting rail;

(b) a support post positioned at one free end of said rail for supporting said one end of said rail at selected elevations;

(c) a user supporting carriage having rollers engaging said rail for travelling along said rail;

(d) pulley means including pulleys attached to said post and lines extending through said pulleys from said carriage and back to said carriage for moving said carriage along said rail;

(e) mounting means for mounting auxiliary support legs which support the end of said rail opposite the end supported by said post at a fixed elevation; and

(f) means for supporting a bar bell, said bar bell support means being connected directly to said mounting means in surmounting relation to said rail.

4,383,685

TRAINING AID FOR BASKETBALL PLAYERS

Leonard E. Bishop, 638 Yorktown Dr., Garland, Tex. 75043

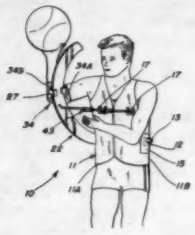
Filed Jan. 18, 1982, Ser. No. 340,365

Int. Cl.³ A63B *69/00*

U.S. Cl. 273—1.5 A **20 Claims**

13. A training aid for use by basketball players, comprising a vest-like member adapted to be worn by the player, an arcuate guide bar for guiding the elbow region of the player's arm for movement in a substantially vertical plane, support means carried by said vest-like member for supporting said guide bar for pivotal movement in a substantially vertical plane about an

axis located contiguous the normally lower end of said guide bar, said guide bar being pivotally mounted on said support means, a sleeve member adapted to be worn by the player contiguous the elbow region of the player, means connected to said sleeve member and slidably engageable with said guide bar, whereby to constrain said sleeve member to move in a substantially vertical path of movement substantially parallel to the plane of said guide bar, a restraining means carried by said sleeve member and positioned at a level above said sleeve



member, said restraining means being adapted to be engaged by the forearm and/or the wrist of the player to limit the rearward movement of the player's forearm and/or wrist relative to the player's upper arm portion, a bracing means connecting said guide bar to said vest-like member, said bracing means comprising a linkage connected at one end thereof to said guide bar at a point intermediate the length of said guide bar, and means detachably connecting the opposite end of said linkage to said vest member.

4,383,686

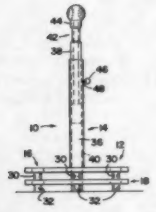
BATTING TEE

Edward Cardieri, 14100 46th St., 5203, Lutz, Fla. 33549

Filed Apr. 30, 1981, Ser. No. 259,256

Int. Cl.³ A63B *69/40*

U.S. Cl. 273—26 R **5 Claims**



1. A batting tee comprising a base including an upper and lower base member held in substantially parallel fixed space relationship relative to each other by a first set of spacers disposed therebetween in combination with a substantially vertical adjustable tee member, said tee member including an elongated interconnecting element having a flexible ball receiving element coupled to the upper portion thereof and a lower tee element coupled to the opposite end thereof, said upper base member comprises a first base element and a second base element attached in coplanar relationship thereto and said lower base member comprises a first base element and a second base element attached in coplanar relationship thereto; receiving means in said upper and lower base members for removably attaching said lower tee element to said base, said receiving means comprising a plurality of corresponding apertures arranged in a predetermined pattern formed in said upper and lower base members to selectively receive the lower tee element to vary the ball hitting position relative to the batting tee wherein the predetermined pattern comprises at least one pair of substantially parallel rows of apertures to select one of at least two batting positions relative to said batting tee.

4,383,687

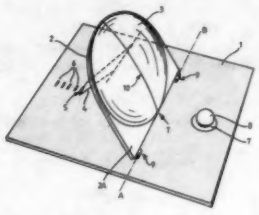
REFLECTING DEVICE FOR GOLF TRAINING OR ANY OTHER SPORT USING A BALL STRIKING STAFF

Claude Wolff, 33, rue Saint-James, 92200 Neuilly-sur-Seine, France

Filed Nov. 30, 1981, Ser. No. 325,938

Int. Cl.³ A63B *69/36*

U.S. Cl. 273—35 A **5 Claims**



1. A reflection device for golf training or any other sport practiced with ball striking staffs where the staffs can be of differing lengths comprising

a carpet,

a convex mirror adjustable to various angles of inclination resting on said carpet,

an orientable flap carrying said mirror,

hinge means to rotate said mirror about a horizontal axis connected to said orientable flap,

movable means connected to said mirror to retain said mirror in each of a plurality of preset inclined positions,

spaced location means identifiable of different settings and placements for said movable means relative to differing lengths of the ball striking staffs.

4,383,688

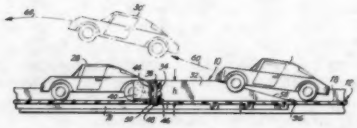
OBSTACLE FOR TOY VEHICLE TRACK

Barry V. Prehodka, Ridgefield, Conn., assignor to Aurora Products Canada Limited, Ontario, Canada

Filed Jan. 23, 1981, Ser. No. 227,578

Int. Cl.³ A63F *9/14*

U.S. Cl. 273—86 B **16 Claims**



6. An obstacle for a toy vehicle track, said track having a surface including a plurality of lanes, comprising:

a vane of extended length pivotably mounted on said track between a pair of said lanes for oscillatory motion about an axis,

said vane in a first pivoted position relative to said pair of lanes, having one end on one side of said axis adapted to extend over a portion of a first one of said pair of lanes, the other end of said vane on the other side of said axis concurrently extending over a at least a portion of the second one of said pair of lanes,

said vane being adapted when pivoted to move substantially adjacent to said track surface, said one end extending from said pivoting axis in a direction opposite to the intended

motion of toy vehicles on said track, said one end being contoured to divert the motion of a colliding vehicle,

said track further including side walls, and the length of said vane from said axis to said one end exceeds the distances from said axis to said side walls.

4,383,689

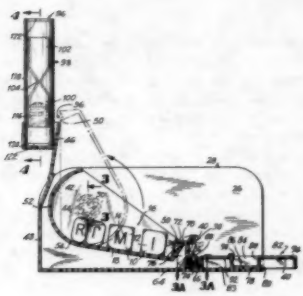
SYMBOL GAME METHOD

Michael Kohner, Parsippany; Frank Kohner, Englewood, and Albert Stubbmann, Franklin Lakes, all of N.J., assignors to Michael Kohner Corporation, Parsippany, N.J.

Filed Jun. 10, 1981, Ser. No. 272,098

Int. Cl.³ A63F *9/04*

U.S. Cl. 273—145 R **4 Claims**



1. A method of playing a game for the selection and juxtaposition of optically discernible symbols to form intelligible groupings comprising a plurality of playing pieces, each having at least two flat faces, at least some of which faces bear at least one optically discernible symbol, the pieces being adapted for resting on a flat, substantially horizontal surface in a position such that one flat symbol-bearing face is in a generally upward-facing position, a game support, a playing-piece receptacle rotatably mounted on said support and having a substantially flat receiving section whereon said playing pieces may be positioned when the receptacle is in a first extreme position so that each piece has an initial face in the upward position, said receptacle being rotatable to a second extreme position, and actuating means operatively attached to said support for scrambling said playing pieces after they have been positioned on the receiving section of the receptacle so that at least some of the pieces have a face in an upward position that is different from said initial face, said actuating means being cocked by movement of said receptacle to said first extreme position and scrambling said pieces as it snaps the receptacle to said second extreme position, said method comprising the steps of:

(a) a first player selecting a plurality of the playing pieces, placing said playing pieces into the playing piece receptacle, said receptacle being in the first extreme position, and positioning said pieces on the receiving section of said receptacle so that each of said pieces has an initial face in the upward position;

(b) said first player utilizing the actuating means to scramble said playing pieces so that at least some of said pieces have a face in the upward position that is different from said initial face;

(c) said first player, within a first predetermined period of time from the completion of the scrambling of the playing pieces effected by utilization of said actuating means, selecting a predetermined number of pieces and juxtaposing them so that at least one intelligible grouping of the symbols appearing on the faces of the pieces in the upward position is formed;

(d) said first player and one or more other players, within a second predetermined period of time from the formation of said intelligible groupings of symbols by said first player, forming additional intelligible groupings of symbols utilizing exclusively some or all of the symbols which comprise the intelligible groupings of symbols formed by said first player; and

(e) assigning values to the intelligible groupings of symbols formed by said first player and by said other players respectively whereby it may be determined which player has accumulated the highest total value.

4,383,690

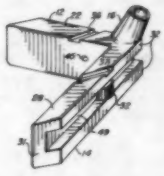
GOLF PUTTER

Thomas J. Maxwell, 43957 Harsdale Dr., Canton, Mich. 48187

Continuation-in-part of Ser. No. 91,176, Nov. 5, 1979, Pat. No. 4,290,606. This application Jul. 17, 1981, Ser. No. 284,177

Int. Cl.³ A63B *69/36, 53/04*

U.S. Cl. 273—164 **23 Claims**



8. A golf club comprising a club head having a hosel and two body members joined together, each body member having a substantially planar striking face, a back surface, a top surface, a toe, a heel, a sole, and a groove in said back surface, said planar striking faces determining an angle of substantially 90°, said hosel being positioned near the vertex of the angle; and a shaft inserted into said hosel, each striking face having a sweet spot which is tangent to a golf ball in contact with each face.

4,383,691

FLUID SEAL WITH RIB FOR ROTARY SHAFT

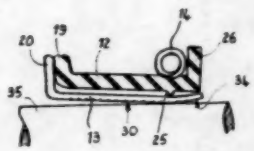
Charles W. Potter, Manchester, England, assignor to J. H. Fenner & Co. Ltd., Yorkshire, England

Continuation-in-part of Ser. No. 215,858, Dec. 12, 1980, abandoned. This application Jun. 4, 1982, Ser. No. 385,112

Claims priority, application United Kingdom, Dec. 21, 1979, 7944248

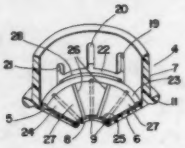
Int. Cl.³ F16J *15/32*

U.S. Cl. 277—134 **14 Claims**



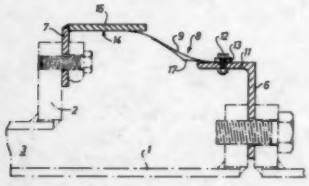
1. A seal assembly for sealing between relatively movable parts comprising a casing, a moulded, resiliently flexible support mounted in said casing and having a surface directed towards the surface to be sealed, a sleeve-like member through which the support bears on the surface to be sealed, said support surface having a rib thereon providing substantially line contact between said support surface and said member, and substantially line sealing contact between said member and said surface to be sealed, said member comprising a thin flexible shell of low friction material, and a garter spring acting on said support substantially in axial alignment with said rib.

4,383,692
GROMMET SEAL
Robert H. Proctor, Cockeysville, Md., assignor to Murray Corporation, Cockeysville, Md.
Filed Jun. 2, 1981, Ser. No. 269,680
Int. Cl.³ H01B 17/30; F16L 5/02
U.S. Cl. 277—178 5 Claims



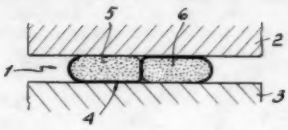
1. A grommet seal comprising a cup-shaped member having a circular base or web and an annular side wall of substantially cylindrical configuration formed integrally with said base or web and projecting from the periphery of said base or web and having a central opening, and a plurality of circumferentially-spaced slits extending radially-outwardly from said opening and providing therebetween flexible tongues and a mating piece or part disposed in said member and having circular base or web having a central opening, and a plurality of circumferentially-spaced slits extending radially-outwardly from said second opening and providing therebetween flexible tongues adapted to overlie the slits of said cup-shaped member, said second named slits being in circumferentially-staggered relationship to the slits of said cup-shaped member.

4,383,693
SEALS FOR DUCTS
Ralph N. Heller, Mettmenstetten, Switzerland, assignor to Grovag Grossventiltechnik AG, Switzerland
Filed May 29, 1981, Ser. No. 268,340
Claims priority, application United Kingdom, Jun. 24, 1980, 8020684
Int. Cl.³ F16J 15/00
U.S. Cl. 277—204 5 Claims



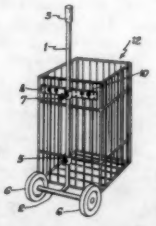
1. A gas-tight seal for the closure of a perimeter space between a duct and a surrounding structure, which space changes due to lateral relative expansion movement between the duct and structure, comprising a spring tempered metal annular diaphragm of generally axially extending, sideways overlapping strip means, the diaphragm having one margin fixed to an annular member for securement in relation to one of the duct and the structure, the other margin of said diaphragm having a face sliding over and biased radially by spring pressure of the diaphragm into contact with a generally axially extending annular seating face for securement in relation to the other of the duct and the structure.

4,383,694
GASKET FOR STATICALLY SEALING HIGH PRESSURE AND TEMPERATURE FLUIDS
Alvaro Fontana, Cerro Maggiore, Italy, assignor to Raimondi S.p.A., Milan, Italy
Filed Mar. 9, 1981, Ser. No. 242,009
Int. Cl.³ F16J 15/06
U.S. Cl. 277—231 1 Claim



1. A composite gasket for statically sealing high pressure and temperature fluids of the type having a metallic casing defining recesses in which inserts of elastic material are arranged, the gasket having two opposite parallel frontal surfaces contacting in use opposite confronting sealing surfaces between which the gasket is clamped and two lateral surface at least one of which being exposed in use to the fluid to be sealed and wherein said recesses are arranged in side by side relationship to each other and wherein according to the improvement the casing defining said recesses has an intermediate web portion extending in use perpendicular to said confronting sealing surfaces, the casing having further a first wing like portion extending perpendicular to said web portion from one end thereof and at one side thereof and adapted in use to contact one of said sealing surfaces and a second wing like portion parallel to said first wing like portion and extending at the other side of said web portion from the other end thereof and adapted in use to contact the other of said sealing surfaces, each of said first and second wing portions having an inwardly bent end portion distant from said web portion and defining an outwardly convex and inwardly concave lateral surface of said gasket thereby to leave open said recesses opposite to said first and said second wing like portion thereof respectfully and each containing said insert of elastic material arranged normally slightly to project from the opening of the respective recess and opposite with respect to the other recess, said recesses and said inserts being thereby generally of substantially rectangular shape in cross-section.

4,383,695
BALL PICKER DOLLY
Lynn L. Ray, 1434 University Ave., San Diego, Calif. 92103
Filed Feb. 27, 1981, Ser. No. 238,912
Int. Cl.³ B62B 1/22
U.S. Cl. 280—47.26 4 Claims



1. A universal ball picker dolly comprising:
(a) an upright shaft;
(b) a wheel assembly mounted to the lower end of said shaft;
(c) a first horizontally extended bracket adjustably mounted to a central portion of said shaft and having mounting means thereon for releasably and selectably mounting

thereto either horizontal or vertical members of a hopper wall when a hopper is engaged on said dolly; and

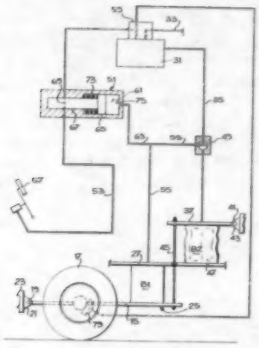
(c) a second bracket longitudinally adjustably mounted on said shaft and defining an upturned hook for hooking onto a grid or frame member at the lower portion of a hopper engaged on said dolly.

4,383,696

BRAKE CONTROL SYSTEM FOR THE RETRACTIBLE AUXILIARY WHEEL TRAIN OF A TRUCK TRAILER

Real Picard, 170 des Marguerites, St-Rédempteur, Quebec, Canada (G0S 3B0)

Filed Oct. 13, 1981, Ser. No. 310,865
Claims priority, application Canada, Oct. 14, 1980, 362291
Int. Cl.³ B62D *1/02*
U.S. Cl. 280—81 R **6 Claims**



1. In a system for raising and lowering an auxiliary retractible wheel train of a truck trailer, of the type comprising:

pressure fluid means for raising or lowering said auxiliary wheel train;

a pressure fluid source to actuate said pressure fluid means;

a selection valve mounted between said pressure fluid means and said pressure fluid source to control the raising or lowering of said auxiliary wheel train;

a braking circuit for the wheels of said auxiliary wheel train

the improvement in the provision therewith of:

a relay valve mounted in the said braking circuit of the wheels of said auxiliary wheel train, actuated by said pressure fluid source according to the position of the selection valve in such a manner as to neutralize said auxiliary wheel braking circuit when said auxiliary wheels are rising.

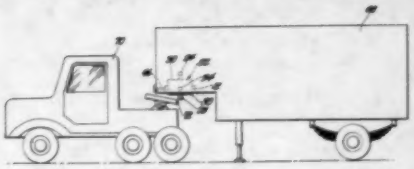
4,383,697

REVERSIBLE KINGPIN FOR TRAILERS

Erwin F'Geppert, Oakland, Mich., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Mar. 6, 1981, Ser. No. 241,292
Int. Cl.³ B62D *53/08*
U.S. Cl. 280—415 A **9 Claims**

1. In a trailer having ground wheels and a skid plate assembly at its forward end for interraction with a fifth wheel on a towing vehicle, the improvement comprising a novel adjustable skid plate assembly which permits any given trailer so equipped to be towed by sufficiently powered vehicle tractors having different fifth wheel heights measured from ground level; said skid plate assembly comprising at least two individual skid plates rigidly interconnected to form a unitary structure, a kingpin projecting from each skid plate for interraction with the aforementioned fifth wheel when the respective skid plate is mated to the support surface of the fifth wheel; pivot means on the front end of the trailer for rotating the skid plate assembly around a horizontal rotational axis so that the various skid plates and associated kingpins can be sequentially moved into operative positions supportable upon the fifth wheel carried by the aforementioned tractor; the several skid plates being spaced different distances from the pivot means rotational axis so that each skid plate is at a different distance above ground level when in its operative position mated to the tractor fifth wheel.

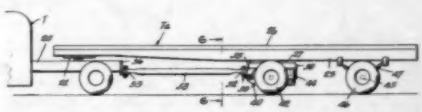


4,383,698

STEERABLE TRAILER

John P. Felburn, P.O. Box 2344, Arlington, Va. 22202

Filed Mar. 25, 1981, Ser. No. 247,398
Int. Cl.³ B62D *13/02*
U.S. Cl. 280—426 **19 Claims**



1. In a roadway trailer having a kin pin at its forward end adapted to be connected to a fifth wheel at the rear of a tractor for establishing towing relation between said tractor and trailer and for supporting the forward portion of the trailer for pivotal movement about the vertical axis provided by said king pin,

said trailer including a load-bearing bed supported by a pair of steel bed channels whose upper and lower flanges are in facing relation, said bed channels extending longitudinally of said bed and disposed on opposite sides of the centerline of said bed,

forward and rearward sets of load-supporting wheel assemblies spaced longitudinally of said trailer,

said forward set of wheel assemblies incorporating an axle normally disposed crosswise of said load-bearing bed but swingable about a vertical pivot and including a supporting plate, subframe and suspension, said supporting plate being confined to movement longitudinally of and along said channels,

said subframe underlying said supporting plate and having an upper horizontally-disposed surface engaging a lower surface of said supporting plate,

a vertically-extending pivot rod connecting said subframe to said supporting plate and providing said vertical pivot about which said axle is swingable,

said subframe having a pair of knees extending forwardly therefrom and disposed on opposite sides of said pivot,

a horizontally-extending stub shaft carried by each of said knees,

a carrier beam for each stub shaft, said beams being laterally spaced and extending in a direction longitudinally of said bed and having a forward end pivotally connected to its respective stub shaft so that its rearward end may swing in a vertical direction,

said axle extending crosswise of said beams and firmly connected to each beam at an intermediate portion thereof, opposite ends of said axle rotatably supporting road-engaging wheels,

road-shock-cushioning means between each beam and an overhanging portion of said subframe, and

means for effecting swinging of said subframe about said vertical axis.

4,383,699

RETRACTABLE SKI BRAKE

Jean J. A. Beyl, Nevers, France, assignor to Ste Look, Nevers, France

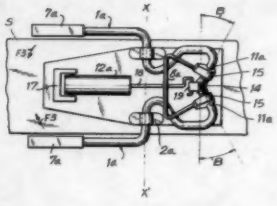
PCT No. PCT/FR80/00040, § 371 Date Nov. 27, 1980, § 102(e) Date Nov. 24, 1980, PCT Pub. No. WO80/01988, PCT Pub. Date Oct. 2, 1980

PCT Filed Mar. 20, 1980, Ser. No. 217,006

Claims priority, application France, Mar. 27, 1979, 79 07598

Int. Cl.³ A63C 7/10

U.S. Cl. 280—605 **6 Claims**



1. A retractable ski brake comprising two pivoting brake arms adapted to be disposed on one and the other side of a ski, the operative portions of said arms being movable about bearing means between a lower braking position and a raised retracted position, the opposite ends of said arms carrying a control pedal and being responsive to resilient return means constantly urging said arms to their operative position, wherein the ends of said pivoting brake arms which are opposite said operative portions are interconnected directly through pivot means, said control pedal being pivotally mounted on the portions of said brake arms which are located between said pivot means and their bearing means, about a pair of axes inclined in opposite directions in relation to a line perpendicular to the ski axis and parallel to the top surface of the ski, whereby when the operative portions of said pivoting brake arms have been raised by the pressure exerted by the ski boot on their opposite ends, the movement of said control pedal towards the ski top surface is attended by the movement of said operative portions of said brake arms towards each other above the ski.

4,383,700

SKI BRAKE

Jean J. A. Beyl, Nevers, France, assignor to Ste Look, Nevers, France

PCT No. PCT/FR80/00041, § 371 Date Nov. 20, 1980, § 102(e) Date Nov. 14, 1980, PCT Pub. No. WO80/01989, PCT Pub. Date Oct. 2, 1980

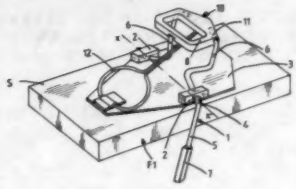
PCT Filed Mar. 20, 1980, Ser. No. 224,555

Claims priority, application France, Mar. 20, 1979, 79 06951

Int. Cl.³ A63C 7/10

U.S. Cl. 280—605 **8 Claims**

1. In a ski brake comprising a pair of pivoting brake arms disposed symmetrically on one and the other side of the ski, said brake arms each having an individual operative end portion movable between a lowered braking position and a raised retracted position, an opposite end portion supporting a control pedal between them and an intermediate bent portion pivotally mounted on the ski with angular play in the ski plane and in the transverse direction, and spring means urging the said arms into their braking position, the improvement comprising fixed bearing means on opposite sides of said control pedal, and bent extensions on the opposite end portions of said brake arms respectively pivotally mounted in said bearings, said pedal in a relaxed normal position, corresponding to said operative end portion being in a nonretracted position, extending in a plane at an angle to the plane of the opposite end portions, and pivoting under the influence of a ski boot toward the plane of the opposite end portions such that when the pivoting brake arms are in the retracted position above the ski



and the pedal presses against the latter, the axes of the respective bearings and the supported extensions form an obtuse angle with one another the vertex of which is directed away from the operative portion of the brake arms, and in which the intermediate bent portion of each arm in the pedal-depressed position of the brake, shifts in their pivoted mounting to move the operative end portions into a recessed retracted position with respect to the ski edges.

4,383,701

SKI

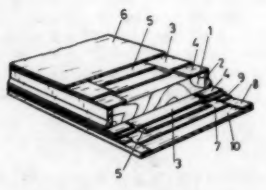
Rudolf Hirnböck, and Adolf Haudum, both of Hohenems, Austria, assignors to Kästle Gesellschaft m.b.H., Hohenems, Austria

Filed Dec. 11, 1980, Ser. No. 215,437

Claims priority, application Austria, Dec. 17, 1979, 7910/79

Int. Cl.³ A63C 5/00

U.S. Cl. 280—610 **10 Claims**



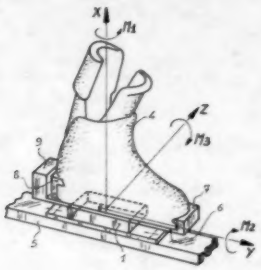
1. A ski comprising a ski body formed with a lower snow-engaging face and an upper face each formed by respective layers, a core within said body between said layers and extending over substantially the entire width of the body, at least one profiled metal sheet disposed between a respective one of said layers and said core, said profiled metal sheet having a U-shaped recess opening away from said core and having a bottom defined by a back portion of said profiled sheet, said profiled sheet further comprising a pair of lateral flanges spaced from said back of said profiled sheet, said back of said profiled sheet bearing against said core and said flanges overhanging said core to define spaces along opposite edges of said core between said core and said flanges, and respective viscous-elastic strips received in said spaces for damping vibration of said ski.

4,383,702

SAFETY BINDING FOR A SKI

George P. J. Salomon, Annecy, France, assignor to S.A. Etablissements Francois Salomon & Fils, Annecy, France

Continuation of Ser. No. 863,146, Dec. 21, 1977, abandoned.
This application Nov. 17, 1980, Ser. No. 210,388
Claims priority, application France, Dec. 21, 1979, 76 38470
Int. Cl.³ A63C 9/08
U.S. Cl. 280—611 4 Claims



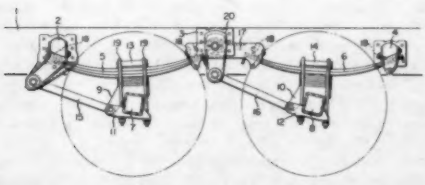
1. A safety binding for a ski with an electrical circuit, comprising, a stress detection circuit for detecting stress during skiing, said circuit being adapted to produce signals for controlling release of said binding in accordance with detected stress, wherein: said detection circuit being located on one test member for simultaneously detecting stresses in at least two directions, said test member being positioned between the boot and the ski for supporting said boot, said detection circuit being further defined by, at least two groups of four gauges each constituting an individual bridge for detecting stresses exerted in a predetermined direction, these two groups being chosen from the three following groups whose four gauges are symmetrical in pairs with respect to the longitudinal and vertical plane and with respect to the transverse and vertical plane, namely a first group of four gauges arranged in pairs in the lateral vertical faces of the test member and inclined with respect to the transverse and vertical plane, a second group of four gauges arranged in pairs in the lateral vertical faces of the test member and extending parallel to the vertical axis, and a third group of four gauges arranged in pairs in the front vertical faces of the test member and extending parallel to the vertical axis.

4,383,703

TANDEM AXLE SUSPENSION ASSEMBLY

Tetsuro Honda; Motoyuki Sato, both of Kamagaya, and Toyoo Itagaki, Ichikawa, all of Japan, assignors to Mitsubishi Steel Mfg. Co., Ltd., Tokyo, Japan

Filed Mar. 6, 1981, Ser. No. 241,102
Claims priority, application Japan, Jun. 25, 1980, 55/86102
Int. Cl.³ B60G 5/06
U.S. Cl. 280—682 8 Claims



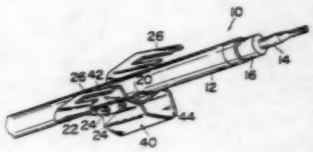
1. In a tandem axle suspension assembly for vehicles wherein a front, a center and a rear hanger means and an equalizer means are mounted to each side of the chassis frame of a vehicle with, on each side of the chassis, a front leaf spring means and a rear leaf spring means being respectively disposed between said front hanger means and a said equalizer means pivotally connected to said center hanger means, and between said equalizer means and said rear hanger means so that the upper end surfaces of said front and rear leaf spring means are in sliding contact with said front and rear hanger means as well as with said equalizer means, said front and rear leaf spring means carrying a front and a rear axle means respectively, and said front hanger means and a portion of said front axle means as well as said center hanger means and a portion of said rear axle means are pivotally connected together by torque rod means, respectively, said equalizer means having said pivotally connecting position to said center hanger means located substantially above the connecting the innermost points of sliding contact of said equalizer means with the upper surfaces of said front and rear leaf spring means.

4,383,704

OCCUPANT PROTECTIVE DEVICE

Noritada Yoshitsugu, Toyota, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Oct. 20, 1980, Ser. No. 198,666
Claims priority, application Japan, Jan. 30, 1980, 55-009865[U]
Int. Cl.³ B62D 21/02
U.S. Cl. 280—750 8 Claims



1. An occupant protective device for moderating a force of collision acting on the knees of an occupant in a vehicle having a steering post, an occupant compartment and an instrument panel, said occupant protective device comprising:

a deformable substantially U-shaped thin sheet knee protector positioned in front of the knees of the occupant;

a deformable knee panel extending from the instrument panel and disposed between said knee protector and the knees of the occupant for covering said knee protector;

a breakaway bracket to which said knee protector is secured, said breakaway bracket solidly securing the steering post to a vehicle body and adapted to fall off the vehicle body in an emergency situation;

said knee protector having a bent center which is deformable;

the knees of the occupant being protected in an emergency situation when the knees push against said knee panel and deform said knee protector.

4,383,705

PRESSURE-SENSITIVE RECORDING MATERIAL

Yoshio Okada; Yuriko Igarashi, both of Iwaki, and Kimio Okubo, Hoya, all of Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Nihonbashi, Japan

Filed Mar. 30, 1981, Ser. No. 249,086
Claims priority, application Japan, Jan. 13, 1981, 56-3566
Int. Cl.³ B41M 5/16, 5/22
U.S. Cl. 282—27.5 7 Claims

1. A pressure-sensitive recording material comprising:

(a) a supporting sheet,

(b) microcapsules applied to said supporting sheet, said microcapsules containing a color former dissolved in a solvent comprising a mixture of 1-isopropylphenyl-2-

phenylethane with diisopropylnaphthalene and/or partially hydrogenated terphenyl, the content of 1-isopropyl-2-phenylethane in said mixture being 20 to 50% by weight, and

(c) a synthetic color developer thereon comprising a condensate of p-aralkylphenol and formaldehyde or a salt of phenylsalicylic acid.

4,383,706

PRESSURE-SENSITIVE RECORDING PAPER

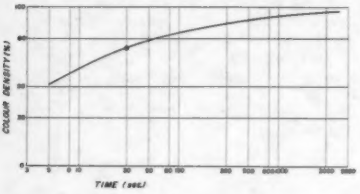
Yoshio Okada, Iwaki; Kimio Okubo, Hoya, and Yuriko Igarashi, Iwaki, all of Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation-in-part of Ser. No. 155,787, Jun. 2, 1980. This application Dec. 8, 1981, Ser. No. 328,737

Claims priority, application Japan, Aug. 31, 1979, 54/111971

Int. Cl.³ B41M *5/16, 5/22*

U.S. Cl. 282—27.5 **1 Claim**



1. A pressure-sensitive recording paper comprising a paper sheet coated with microcapsules containing therein a solution of a color former in 1-isopropylphenyl-2-phenylethane as a solvent.

4,383,707

CLOSING DEVICE FOR DOORS AND THE LIKE

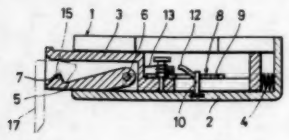
Tamotsu Nishimura, Osaka, Japan, assignor to Futaba Kinzoku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Feb. 11, 1981, Ser. No. 233,646

Claims priority, application Japan, Sep. 22, 1980, 55-135017[U]

Int. Cl.³ E05C *3/32*

U.S. Cl. 292—110 **1 Claim**



1. A closing device for doors and the like, comprising a casing, a slider housed in the casing, said slider outwardly and inwardly slidable relative to the casing and urged by spring means outwardly relative to the casing, locking means provided on the slider in the casing for locking up the slider in the casing if the slider is pushed into the casing and for releasing the slider if the slider is pushed again, engagement means having a catch projection at one end thereof and pivotally supported on a shaft mounted to the slider at the right angle to the direction of slide movement of the slider, said catch projection disposed in opposed relation with the front end portion of the slider, and coupling means interposed between the engagement means and the slider and having at one end thereof a counterpart catch member engageable with the catch projection.

4,383,708

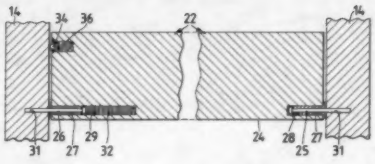
LOCKING DEVICE FOR SLIDING CLOSURE UNIT

Eugene Lamberth, 4244 Overlook Dr., Birmingham, Ala. 35222

Filed Nov. 20, 1980, Ser. No. 208,534

Int. Cl.³ E05C *17/12*

U.S. Cl. 292—204 **4 Claims**



1. In a locking device for use with a sliding closure unit having a first vertical panel and a second vertical panel with each panel having end frame members, said locking device comprising:

(a) an elongated stop member extending between and pivotally connected at its ends to the end frame members of one panel with said stop member being rotatable selectively to an inoperative position alongside said one panel to permit free sliding movement of the other panel and to an operative position with a portion of said stop member extending laterally into position to limit sliding movement of said other panel, and

(b) releasable catch means detachably connecting said stop member to at least one end frame member of said one panel to retain said stop member in its inoperative position.

4,383,709

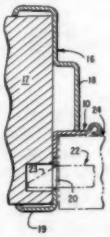
ANTI-SHIM SAFETY DEVICE FOR PREVENTING WRONGFUL DISENGAGEMENT OF DOOR LATCHES

Thomas O. Ronan, Memphis, Tenn., assignor to Holiday Inns, Inc., Memphis, Tenn.

Filed Jun. 19, 1980, Ser. No. 161,211

Int. Cl.³ E05C *21/00*

U.S. Cl. 292—346 **4 Claims**

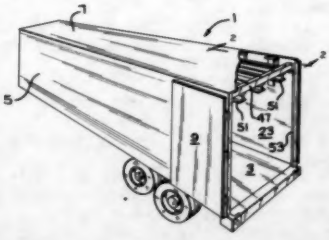


1. In combination with structure defining a jamb and stop rail for a door, guard means to prevent insertion of shim-like articles between the jamb, rail and door, said guard device comprising an elongated strip of relatively rigid material having a substantially planar, longitudinal face interposed between first and second longitudinal margins, one of said margins having integral means for firm attachment to said jamb, the other of said margins having an integral longitudinal extension with a free edge extending lengthwise thereof, said extension being contoured to form a bulge-like border with said free edge being generally in-turned, said a first layer of foam-like resilient material affixed to said face to be compressed when said device is mounted on said jamb and the door is closed, and a second layer of foam-like resilient material affixed to the jamb in juxtaposition with said first layer.

4,383,710
PET LITTER RETRIEVER
Robert W. Fehr, 6621 Avenida Mirola, San Diego, Calif. 92123
Filed Jun. 8, 1981, Ser. No. 271,442
Int. Cl.³ A01K *29/00*
U.S. Cl. 294—1 BA **2 Claims**

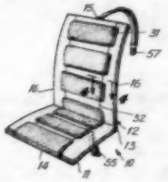
1. A pet litter retriever comprising:
(a) an elongated main shaft;
(b) a dropping collector structure mounted on the bottom of said shaft;
(c) an actuator mounted on said shaft and being operative from the upper portion of said shaft to control said collector;
(d) a spray means mounted on the top of said shaft and being usable to spray fluid on a sidewalk or other surface to rinse same;
(e) said main shaft defining a hollow cylinder plugged at the bottom to serve as a fluid reservoir for said spray means so that said spray means can be used independently of any hose water source; and
(f) said spray means including a spray head having a tube extending down to the bottom of said reservoir communicating with said reservoir.

4,383,711
TRAILER SUPPORT FRAME APPARATUS
Glenn G. Dunbar, 2608 Overbrook, Toledo, Ohio 43614
Filed Jan. 21, 1981, Ser. No. 226,949
Int. Cl.³ B62D *33/04*
U.S. Cl. 296—181 **8 Claims**



1. A support frame for a trailer having opposed side walls comprising:
at least one channel positioned on the opposed side walls of said trailer;
a substantially L-shaped bracket having a first leg and a second leg secured to said channels, the first leg of said bracket extending over and engaging said channel, said second leg extending along the surface of said channel; and
a support surface attached to said second leg of said bracket, said support surface extending from the surface of said second leg in a direction that is substantially perpendicular to the surface of said second leg whereby said support surface is disposed for supporting loading structure between said opposed side walls of said trailer.

4,383,712
COMPOSITE SEAT COVER
Jose Kaganas, Miami, Fla., assignor to Sheepskin Autoseat Corporation, Hialeah, Fla.
Filed May 5, 1982, Ser. No. 375,332
Int. Cl.³ A47C *31/10*
U.S. Cl. 297—219 **21 Claims**



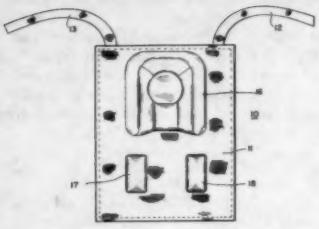
1. A composite seat cover, comprising
at least one covering portion of a sheet-like configuration having a first and a second major surface respectively facing away from and toward the seat in use,
said first major surface having at least two sets of regions which adjoin each other so that the respective region of one of the sets adjoins at least one region of another set,
said regions of said one set and said other set each having a multitude of hair-shaped elongated elements projecting therefrom,
said hair-shaped elongated elements of said one set of regions having lengths which at least on the average exceed those of any hair-shaped elongated elements of all other of said regions,
said hair-shaped elongated elements of said other set of regions having lengths which at least on the average are shorter than those of said hair-shaped elements of said one set.

4,383,713
ORTHOPEDIC SUPPORT APPARATUS FOR INFANTS
Stewart A. Roston, 681 River Ave., Lakewood, N.J. 08701
Filed Jan. 8, 1981, Ser. No. 223,345
Int. Cl.³ A47C *27/00*
U.S. Cl. 297—219 **9 Claims**

1. Orthopedic support apparatus for infants, comprising:
(a) a planar sheet member fabricated from a fabric like material having a top and bottom edge and two side edges;
(b) a pillow member removably positioned near the top edge of said planar sheet, said pillow member having a curved top edge contiguous with relatively parallel right and left sides and a relatively flat bottom edge, with a peripheral upwardly extending flange directed from said side surfaces and about said top surface with said flange having sloping sidewalls directed from said side surfaces and said top edge towards a central depression with said central depression having a flat central portion extending from the bottom of said pillow to said central depresion for accommodating the neck of said infant when the head of

said infant is emplaced in said depression with the bottom edges between said flat central portion and said right and left sides forming a shoulder support for said infant, and

(c) first and second selectively postionable lateral support



members positioned beneath said pillow for providing lateral support for the body sides of said infant when emplaced therein, whereby said infant can assume a desired postural position when accommodated by said apparatus.

4,383,714

ROCKING MOVABLE CHAIR

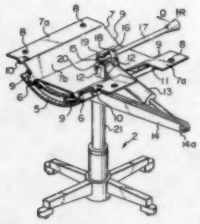
Kunio Ishida, Yokohama, Japan, assignor to Tokico Ltd., Kanagawa, Japan

Filed Aug. 7, 1980, Ser. No. 176,243

Claims priority, application Japan, Aug. 20, 1979, 54-105663; Aug. 20, 1979, 54-105664; Aug. 20, 1979, 54-105665

Int. Cl.³ A47C *1/02*

U.S. Cl. 297—325 **9 Claims**



1. A rockingly movable chair comprising:

a leg portion;

a seat portion supported on said leg portion;

one of said leg portion and said seat portion having a circular arc surface;

the other of said leg portion and said seat portion having an element mounted for displacement along said circular arc surface such that said seat portion is rockably movable with respect to said leg portion;

first gas spring means, connected between said leg portion and said seat portion, for movement biasing said seat portion in one rocking direction during rocking movement thereof;

second gas spring means for movement raising and lowering selectively the height of said leg portion;

each of said first and second gas spring means including a respective lock movable between a locking position preventing movement of the respective gas spring means and a releasing position allowing movement of the respective gas spring means; and

actuating means for operating independently and selectively said locks of said first and second gas springs for selective and independent movement between said locking and releasing positions thereof, said actuating means comprising a single operating lever movably mounted on said seat portion, said lever having a portion for operating one of said locks and an arcuate member for operating the other of said locks.

4,383,715

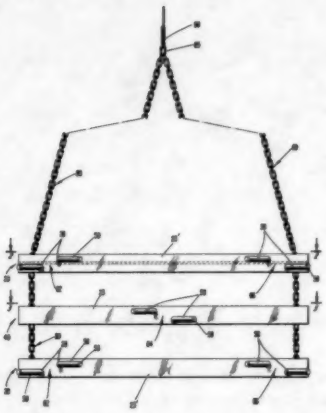
WALL BRUSH

Paul E. Scott, Florence; George W. Willich, Tuscumbia, and William W. Jemison, Jr., Birmingham, all of Ala., assignors to Vulcan Materials Company, Birmingham, Ala.

Filed Feb. 26, 1981, Ser. No. 238,167

Int. Cl.³ E21C *35/18*

U.S. Cl. 299—88 **7 Claims**



1. A wall brush for dislodging loose material from a wall face, comprising:

scraper means for contacting the wall face and dislodging loose material therefrom;

housing means for housing said scraper means with a longitudinal face of said housing means being parallel to the wall face, said scraper means projecting outwardly from said longitudinal face, said housing means comprising at least one H-beam wherein the scraper means comprises at least one pair of elongated rod-like teeth which are disposed perpendicularly with respect to each other so that both ends of both teeth project outwardly from said housing means, said elongated rods being secured to said housing means; and

suspension means for flexibly suspending said housing means.

4,383,716

WHEEL TRIM RETENTION SYSTEM

Doyle L. Osborn, Westland, Mich., assignor to NI Industries Inc., Novi, Mich.

Continuation of Ser. No. 25,324, Mar. 30, 1979, abandoned. This application Oct. 28, 1980, Ser. No. 201,566

Int. Cl.³ B60B *7/00*

U.S. Cl. 301—37 R **22 Claims**

1. A wheel trim retention system comprising:

a trim member;

means defining an axially inwardly opening slot on said wheel trim;

means defining a generally radially inwardly facing stop surface on said wheel trim, said stop surface being radially outwardly spaced from said slot; and

a spring clip having a first end portion disposed within said slot, a second generally axially outwardly projecting end portion extending generally axially outwardly into the space between said slot defining means and said stop

surface and being radially movable with respect to said trim member and engageable with said stop surface, said stop surface being operative to limit radial outward movement of said second end portion, wheel engaging retention

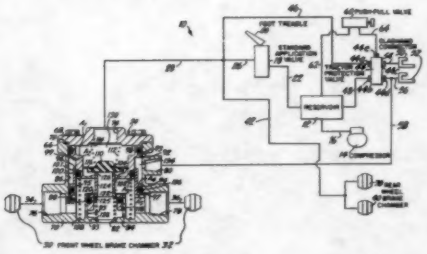
means intermediate said first and second end portions, and a spring portion adjacent said retention means, said spring portion being operative to bias said retention means into engagement with a vehicle wheel when said trim member is assembled thereto.

4,383,717

TRACTOR AIR BRAKE SYSTEM AND CONTROL VALVE MEANS THEREFOR

Richard C. Bueler, Des Peres, Mo., assignor to Echlin Inc., Branford, Conn.

Filed Jun. 15, 1981, Ser. No. 273,945
Int. Cl.³ B60T *15/36*
U.S. Cl. 303—7 **14 Claims**



1. In a tractor having front wheel brakes and rear wheel brakes, a tractor air brake system comprising:

(a) a source of service and emergency air pressure;

(b) front brake actuators for actuating said front wheel brakes;

(c) rear brake actuators for actuating said rear wheel brakes;

(d) an application valve for delivering service air pressure from said source to said front and rear brake actuators;

(e) control valve means, connected between said application valve and said front brake actuators, operating in a first mode to reduce the service air pressure delivered to said front brake actuators relative to the service air pressure delivered to said rear brake actuators when the tractor is operated with a trailer and said tractor air brake system is connected to the trailer brake system;

(f) said control valve means operating in a second mode to control the service air pressure delivered to said front brake actuators when the tractor is operated without a trailer;

(g) said control valve means, when operating in said first mode, allows the service air pressure delivered to said front brake actuators to be substantially equal to that delivered to the rear brake actuators until said service air pressure reaches a first predetermined level;

(h) said control valve means, when operating in said first mode, prevents the delivery of service air pressure to said front brake actuators as the service air pressure being delivered to said rear brake actuators is increased from said first predetermined level to a second predetermined level; and

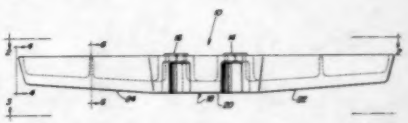
(i) said control valve means, when operating in said first mode, functions to deliver service air pressure to said front brake actuators at a faster rate than service air pressure is delivered to said rear brake actuators as the service air pressure being delivered to said rear brake actuators is increased from said second predetermined level to a third higher predetermined level.

4,383,718

LOW GROUND PRESSURE TRACK SHOE

Danny L. Ragon, East Dubuque, Ill., assignor to Deere & Company, Moline, Ill.

Filed Jan. 29, 1981, Ser. No. 229,416
Int. Cl.³ B62D *55/20*
U.S. Cl. 305—53 **6 Claims**



1. A low ground pressure track shoe, comprising:

an elongate member being generally rectangular in plan view and having a ground-engaging bottom surface defined by downwardly converging opposite sidewalls joined together at their lower extremes by flat surface portions extending substantially the length of the member, said flat surface portions including a substantially rectangular horizontal portion located centrally between opposite ends and sides of the member and having dimensions respectively between opposite ends and opposite sides which are approximately one-third of the corresponding dimensions of the member in plan view; and said substantially rectangular portion of the flat surface portions being the lowermost surface of the track shoe.

4,383,719

CONVEX BACK SLEEVE BEARING

Albert J. Matzelle, Brighton, Mich., assignor to Federal-Mogul Corporation, Detroit, Mich.

Filed Jul. 29, 1980, Ser. No. 173,291
Int. Cl.³ F16C *33/04*
U.S. Cl. 384—282 **3 Claims**

1. A sleeve bearing half shell (18) of a generally semicircular

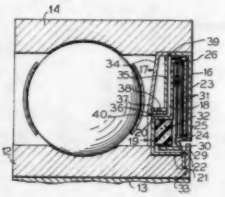
configuration and having an outer surface (20) and an inner bearing surface (22) for engaging a journaled member (12), said surfaces (20, 22) extending axially between laterally spaced opposite ends (24) and circumferentially between oppositely disposed parting faces (26), characterized by being bowed axially between said ends with said bearing surface (22) being concave and said outer surface (20) being convex while in the free state, said concave and convex surfaces (20, 22) extending from parting face (26) to parting face (26), said half shell (18) extending about an axial center (28) and the terminal portions adjacent said parting faces (26) being on a longer radius (r_2) from said axial center (28) than the radius (r_1) of the central portion between the parting faces (26) while in the free state (FIGS. 5 and 6), said concave and convex surfaces (20, 22) being less concave and less convex while remaining concave and convex when said terminal portions adjacent said parting faces (26) are moved together to a position where the terminal portions are on a radius (r_1) equal to the radius (r_1) of the central and remaining portions (FIGS. 7 and 8).

4,383,720

CENTRIFUGAL FLUID SEAL

Hermann H. F. Ernst, R.R. 2, St. Cloud, Minn. 56301

Filed Jan. 29, 1982, Ser. No. 343,999
Int. Cl.³ F16C *33/76*; F16J *15/42*
U.S. Cl. 308—187.1 **22 Claims**



1. A centrifugal fluid seal for acting between the inner and outer races of a bearing assembly, said seal comprising:

(a) a hollow rotor having an axial opening engageable with the inner race in fluid-tight relation, said rotor having a number of drain holes extending therethrough near the largest diameter of its hollow interior;

(b) a fixed annular cap cooperative at its outer periphery with the outer race in fluid-tight relation and defining part of a cavity encircling the periphery of said rotor into which cavity said drain holes open;

(c) said cap and said rotor jointly defining an annular gap leading from said cavity into the interior of said rotor radially inwardly of said drain holes;

(d) means carried by said cap and disposed within the interior of said rotor, downstream of said annular gap for diverting fluid from said annular gap toward said drain holes, said diverting means being spaced radially inwardly from any liquid accumulation upstream of said drain holes; and

(e) a static annular recirculator adapted to be fixed with the outer race and defining part of said cavity, said recirculator being apertured to receive centrifugally pressurized liquid from said drain holes and to discharge such liquid radially inwardly toward said inner race.

4,383,721

STORAGE BOX CLOSURE CONTROL

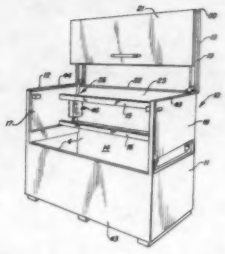
Howard L. Knaack, and Kenneth F. Weger, Jr., both of Cary, Ill., assignors to Knaack Manufacturing Company, Crystal Lake, Ill.

Filed Feb. 12, 1982, Ser. No. 348,649
Int. Cl.³ A47B *88/00, 95/00*
U.S. Cl. 312—319 **20 Claims**

1. In a storage box having an upwardly opening receptacle having a rear portion defining a rear wall, and a heavy metal closure swingably mounted to said rear wall for selective positioning in a raised open position and a lowered, receptacle-closing position, the improvement comprising:

an elongate, longitudinally expansible spring having a lower end and an upper end;

means for connecting said lower end to said receptacle rear portion; and



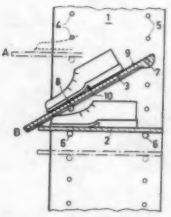
means for connecting said upper end to said closure adjacent said rear wall, said spring developing a lifting force preselected to be slightly less than the downward force caused by the weight of the closure in said receptacle-closing position, slightly more than the downward force caused by the weight of the closure in said open position, and substantially equal to the downward force caused by said closure in an intermediate position intermediate said receptacle-closing and open positions.

4,383,722

SHOW CASE, IN PARTICULAR FOR DISPLAYING SHOES OR THE LIKE

Leo Weber, Bahnhofstrasse 7, A-9360 Friesach, Austria

Filed Nov. 25, 1980, Ser. No. 210,198
Claims priority, application Austria, Nov. 27, 1979, 7514/79; Jul. 14, 1980, 3646/80; Oct. 3, 1980, 4929/80
Int. Cl.³ A47F *7/08*; A47B *88/00*
U.S. Cl. 312—324 **3 Claims**



1. Show case, in particular for displaying shoes or the like, in which horizontal shelf plates (2) as well as shelf plates (3) tilted from the rear toward the front are provided, said tilted shelf plates (3) being disposed each above a horizontal shelf plate (2) and supported by a horizontal pivot axis located in a rear area of the show case and being upwardly tiltable around said pivot axis, wherein the pivots (7, 22) of the tilted shelf plates (3) as well as the support elements (8, 14, 29) disposed in the frontal area of the show case and which determine the slope of the tilted shelf plates (3) are upwardly displaceable within side plates (1) provided on the two sides of the shelf plates (2 and 3), and support elements (6, 14) supporting the horizontal shelf plates (2) also are upwardly displaceable within said side plates (1), and

wherein provisions are made to lock the pivots (22) and the support elements (14) for the tilted shelf plates (3) and the

support elements (14, 22) for the horizontal shelf plates (2) in position within recessed slots (12, 13) running vertically within said side plates (1) and formed e.g. in profiles (11), and further

wherein bearing boxes (24) receiving the pivots (7, 22) fastened onto the side plates (1) are connected in particular with the tilted shelf plates (3) at the rearward regions thereof, said bearing boxes (24) being disposed in lateral glued parts (23) which may be provided, e.g. of wood or plastic, running perpendicular to the plane of the tilted shelf plate (3), and further

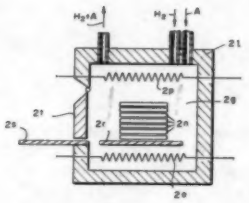
wherein each bearing box (24) is provided with an angled slot (25) open toward the side plate (1) and having one leg (26) running perpendicular, and another leg (27) running parallel to the tilted shelf plate (3), said perpendicular leg (26) being open at its bottom and said parallel leg (27) being closed toward the rear.

4,383,723

PROCEDURE FOR MANUFACTURING GAS-FILLED DISCHARGE DEVICES

C. Arne Schleimann-Jensen, Stockholm, Sweden, assignor to TII Industries, Copiague, N.Y.

Filed Dec. 8, 1980, Ser. No. 213,909
Int. Cl.³ H01T *21/00*
U.S. Cl. 445—54 **10 Claims**



1. A method for manufacturing a gas-filled discharge tube, designed, e.g., as transient protection, containing tube components comprised of at least two electrodes and an insulating body holding the electrodes joined vacuum-tight, with the electrodes and the insulating body dimensioned and arranged in such a way that at least one discharge gap is present in the tube, comprising the steps of:

A. sealing at a suitable temperature the components of the tube in a gas-flow substantially at atmospheric pressure and consisting of a light gas mixed with another gas which, in view of the function of the finished tube, is desirable and heavier than the first-mentioned gas,

B. exposing the tube with its enclosed gas mixture in a gas-flow, substantially at atmospheric pressure, which has about the same density as the heavy portion of the enclosed gas mixture, and

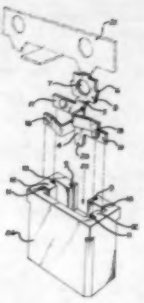
C. adjusting the temperature so as to be lower than the sealing temperature, whereby the heavy gases can only to an insignificant degree penetrate the tube walls through diffusion, and the enclosed light gas can diffuse through the walls so that, as a result of the partial pressure difference, it will exit through the walls of the tube, thus causing a reduction in the total gas pressure inside the tube.

4,383,724

BRIDGE CONNECTOR FOR ELECTRICALLY CONNECTING TWO PINS

Laurentius M. Verboeven, Zijtaart, Netherlands, assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Apr. 10, 1981, Ser. No. 252,880
Claims priority, application Netherlands, Jun. 3, 1980, 8003225
Int. Cl.³ H01R *31/08*
U.S. Cl. 339—19 **10 Claims**



1. Bridge connector for electrically connecting at least two substantially parallel pins, characterized in that a bridge connector terminal portion consists of a central leg of resilient material, each side having attached at least one pair of branch contacts of the same material, each pair consisting of one substantially straight branch in the same first plane with the central leg and one bent branch having a first portion substantially perpendicular to the central leg and a second portion bent to a position substantially parallel to the straight branch in a second plane with respect to the central leg, each pair of branch contacts having its straight branch at the same level with a bent branch from the corresponding branch contact at the other side of the central leg, the arrangement being such, that upon sliding the bridge connector upon two pins, each pin will be pinched between one end of the mainly straight branch at the one level and laying in the first plane and one end of the second portion of the bent branch at the other level and laying in the second plane, so that the bridge connector terminal partly is loaded torsionally, said bridge connector terminal being located in a dielectric housing open at one end and closed at the other end, said housing containing a pair of parallel channels at each opposite inner surface for receiving the free ends of the branch contacts upon sliding the bridge connector into the open end of the housing, the closed end of the housing being provided with entry holes for said pins.

4,383,725

CABLE ASSEMBLY HAVING SHIELDED CONDUCTOR

Charles E. Bogese, and Stephen B. Bogese, II, both of Roanoke, Va., assignors to Virginia Patent Development Corp., Roanoke, Va.

Continuation-in-part of Ser. No. 48,636, Jun. 14, 1979, Pat. No. 4,314,737. This application Apr. 29, 1981, Ser. No. 258,727
Int. Cl.³ H01R *13/38*; H01B *07/34*
U.S. Cl. 339—99 R **19 Claims**

1. A flat multi-conductor cable comprising:

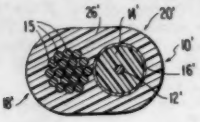
a conductive wire adapted to transmit an electrical signal;

cylindrical insulation covering said wire along its length;

means for shielding said wire against outside electrical interference which comprises a thin metallic layer of conductive material bonded to said insulation;

a ground wire comprising at least one uninsulated metallic wire disposed in contact with said thin layer of conductive material along its length; and

an insulation jacket covering said ground wire and said conductive material for maintaining physical and electri-



cal contact therebetween, wherein the outer diameters of said ground wire and said conductive material are approximately the same.

4,383,726

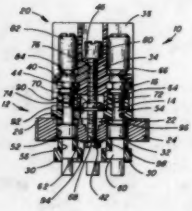
ELECTRIC TERMINAL

Raymond T. Divers, Camillus; Thomas L. Kassouf, East Syracuse, both of N.Y., and Joan Circelli, Arlington, Tex., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Dec. 22, 1980, Ser. No. 219,040

Int. Cl.³ H01R *9/18*

U.S. Cl. 339—198 R **10 Claims**



1. An electric terminal comprising:

a body;

a plurality of terminal pins longitudinally extending through the body;

a plurality of terminal nut means, each terminal nut means encircling and engaging an upper portion of a terminal pin, located above an upper surface of the body, and held in pressure contact thereagainst by the pin wherein the body urges the terminal nut means and the upper portion of the terminal pin upward;

retainer means including a longitudinal portion and a transverse portion, the longitudinal portion extending between terminal pins to insulate electrically the pins from adjacent pins, the transverse portion extending above and over the terminal nut means to limit upward movement of the terminal nut means and the terminal pins, and wherein the terminal pins longitudinally extend above the transverse portion of the retainer means to provide access to the terminal pins; and

connecting means releasably connecting the retainer means to the body.

4,383,727

INFRA-RED OPTICAL SYSTEMS

Philip J. Rogers, Bodelwyddan, Wales, assignor to Pilkington P.E. Limited, St. Helens, Great Britain

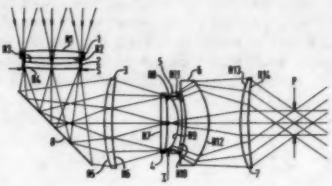
Filed Aug. 6, 1980, Ser. No. 175,758

Claims priority, application United Kingdom, Aug. 8, 1979, 7927675; Jul. 24, 1980, 8024209

Int. Cl.³ G02B *3/00*

U.S. Cl. 350—1.3 **26 Claims**

1. An "eye-piece" system for use in a non-Gallilean, afocal, infra-red optical system or afocal, infra-red telescope in which an intermediate image is formed, the "eye-piece" system comprising at least three lens elements of infra-red transmitting material operative with radiation in at least one of the 3 to 5.5 and 8 to 13 micron wavebands, the three lens elements including a back element of positive power having a back surface which is either convex or concave, a front surface which is convex, and a pair of elements which are closely spaced to



define a gas lens therebetween, the back element of the pair having a convex back surface and the front element of the pair having a concave front surface, the pair of elements in combination with the gas lens therebetween being of positive power.

4,383,728

CARBON COATED INFRA RED REFLECTORS

Alan H. Litington, Worcester, England, assignor to National Research Development Corporation, London, England

Filed Nov. 14, 1980, Ser. No. 206,898

Claims priority, application United Kingdom, Nov. 20, 1979, 7940014

Int. Cl.³ G02B *1/04, 5/08*

U.S. Cl. 350—1.7 **9 Claims**

1. An infra red reflector comprising a substrate having a highly reflecting surface covered with a thin layer of glassy carbon that is substantially transparent to infra red radiation, with a high abrasion resistance and chemical durability.

4,383,729

LIGHT TRANSMITTING SYSTEM COMPRISING BEAM DIVIDING AND COMPOSITING MEANS

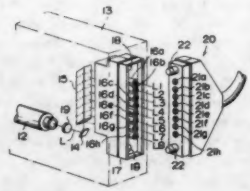
Masane Suzuki, and Motonori Kanaya, both of Omiya, Japan, assignors to Fuji Photo Optical Co., Ltd., Omiya, Japan

Filed Oct. 17, 1980, Ser. No. 197,823

Claims priority, application Japan, Nov. 12, 1979, 54-146324

Int. Cl.³ G02B *5/16*

U.S. Cl. 350—96.10 **5 Claims**



1. A light transmitting system for transmitting a laser beam of high energy concentration from a single laser beam source, comprising:

a beam dividing means for dividing a light beam from a laser beam source into a plurality of light beams of equal intensity and emitting the divided light beams in a predetermined arrangement, and

a beam guiding means consisting of a plurality of flexible optical fibers each of a diameter of about 150μ having a beam entrance end in which one end of the optical fibers is separated into a plurality of ends arranged in an arrangement corresponding to said predetermined arrangement to receive said plurality of light beams respectively, and a beam exit end in which the other end of the optical fibers is bound into a bundle to make the light beams emanating from the optical fibers form a composite light beam.

4,383,730

OPTICAL FOUR-GATE COUPLER

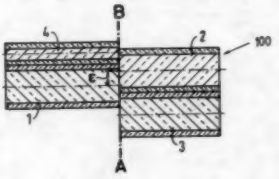
Hans H. Witte, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Aug. 28, 1980, Ser. No. 182,061

Claims priority, application Fed. Rep. of Germany, Sep. 24, 1979, 2938526

Int. Cl.³ G02B 5/14

U.S. Cl. 350—96.16 **10 Claims**



1. In an optical four-gate coupler for connecting a branch comprising a pair of input fibers and a pair of output fibers, said pairs of input fibers being arranged with planar end faces abutting planar end faces of the pair of output fibers with an axial offset, one of said pair of input fibers being an input branch fiber and one of the pair of output fibers being an output branch fiber, the improvements comprising means for decreasing the input coupling loss of the input branch fiber independently and faster than the increase of the degree of coupling of the output branch with an increased axial offset, said means including said input branch fiber being of a smaller cross-section than the other three fibers of the coupler.

4,383,731

OPTO-ELECTRONIC HEAD INCORPORATING A VERY SMALL DIAMETER OPTICAL FIBRE PORTION AND CONNECTION DEVICE INCORPORATING SUCH A HEAD

Jacques Simon, and Bernard Defaut, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Sep. 18, 1980, Ser. No. 188,492

Claims priority, application France, Sep. 21, 1979, 79 23596

Int. Cl.³ G02B 4/14

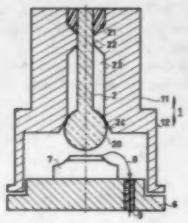
U.S. Cl. 350—96.18 **9 Claims**

1. An opto-electronic head comprising:

an optical fiber having a first diameter and having at least a first portion extending along an axis, one end of said fiber adjacent said first portion defining a spheroid having a second diameter greater than said first diameter;

a fiber holder including a bore in which said fiber is positioned, said bore including a first portion having a third diameter larger than said first diameter, and a second portion, axially smaller than said first portion, having a fourth diameter substantially equal to said first diameter wherein said fiber is held by said fiber holder only at said second portion and at said spheroid;

a base fixed to said fiber holder; and



a photo sensitive diode fixed to said base, said diode facing said spheroid and being in substantial alignment with said axis.

4,383,732

FIBER OPTIC CONNECTOR

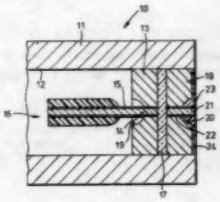
David G. Dalgoutte, Ilkley; Peter F. C. Burke, Leeds; John D. Archer, Halifax, and Robert G. Pragnell, Leeds, all of England, assignors to International Standard Elektrik Corp., New York, N.Y.

Continuation-in-part of Ser. No. 86,727, Oct. 22, 1979, abandoned. This application May 18, 1981, Ser. No. 264,336

Claims priority, application United Kingdom, Oct. 27, 1978, 42222/78

Int. Cl.³ G02B 5/14

U.S. Cl. 350—96.20 **6 Claims**



1. An optical fiber termination member for a plastic coated fiber comprising:

a tubular body member having alignment means for receiving and aligning a fiber coaxial within the body member;

a watch bearing jewel positioned adjacent to and in front of said alignment means;

an optical fiber stub mounted in the bore in said jewel, said fiber stub having a length substantially the same as the axial length of said jewel; and

a transparent solid protective window disposed between said alignment means and said jewel against which the fiber to be terminated and said fiber stub abut whereby the fiber and said fiber stub will be coupled optically via said window.

4,383,733

DEVICE FOR FORMING LAYER IMAGES OF A THREE-DIMENSIONAL OBJECT BY MEANS OF A LENS MATRIX

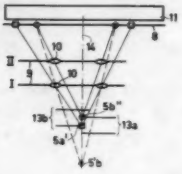
Hermann Weiss, Hamburg; Erhard Klotz, Halstenbek; Ulf Tiemens, Prisdorf; Rolf Linde, Haseldorf, and Wilfried Mauser, Hamburg, all of Fed. Rep. of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 14, 1980, Ser. No. 196,233

Claims priority, application Fed. Rep. of Germany, Oct. 30, 1979, 2943758

Int. Cl.³ G02B *27/22*; G03B *35/06*

U.S. Cl. 350—130 **6 Claims**



1. A device for examining the interior of a three-dimensional object comprising:

means including a plurality of radiation source positions in a single plane for forming a coded image of separate perspective images of an object,

means including a lens matrix arranged parallel to the plane of said coded image for reconstructing said object by superposing said perspective images, said lens matrix having a lens distribution corresponding to a distribution of said radiation source positions,

means including a displaceable photosensitive element in an image space for forming separate layer images of said object, said photosensitive element being adjustable within the depth of focus range of lenses in said lens matrix, and said lens matrix being displaceable with respect to said coded image plane for forming different layer images on said photosensitive element,

wherein said lens matrix and said photosensitive element are displaceable in a coupled manner.

4,383,734

REAL-TIME OPTICAL CORRELATION SYSTEM

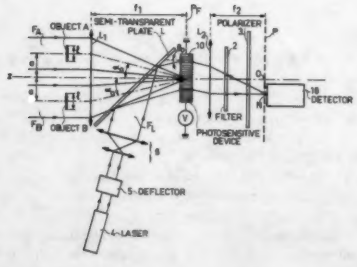
Jean-Pierre Huignard; Jean-Pierre Herriau, and Laurence Pichon, all of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Nov. 4, 1980, Ser. No. 204,050

Claims priority, application France, Nov. 5, 1979, 79 27218

Int. Cl.³ G03H *1/16*; G02B *5/32*

U.S. Cl. 350—162.13 **8 Claims**



1. An optical correlation system for obtaining the correlation function of a first object by a second one, comprising means for illuminating the objects by means respectively of two coherent beams, first focusing means projecting in a first focal plane (PF) an illumination having an intensity substantially proportional to the algebraic sum of the Fourier transforms of the light amplitudes transmitted by the two objects respectively, a photosensitive support medium situated in the first focal plane (PF), recording this illumination in real time and formed from a continuously recyclable material in which the recording forms a three-dimensional grating of fringes, other means for illuminating the photosensitive support medium, second focusing means projecting in a second focal plane (P) an illumination having an intensity substantially proportional to the Fourier transform of the recorded illumination, and means for detecting correlation peaks situated in a zone of the second focal plane (P) and characterizing the correlation function, wherein said other means for illuminating said photosensitive support medium comprise angular sweep means ensuring optimum diffraction efficiency successively for the different points of the observed zone of said second focal plane (P).

4,383,735

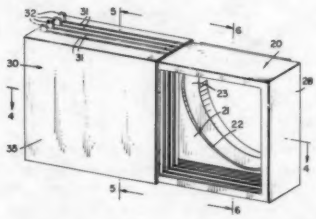
PHOTOGRAPHIC FILTER PACK AND FILTER HOLDER

David M. Stravitz, New York, N.Y., assignor to Ambico Inc., Lynbrook, N.Y.

Filed Sep. 5, 1980, Ser. No. 184,386

Int. Cl.³ G02B *7/00*, *11/00*

U.S. Cl. 350—318 **30 Claims**



1. A combination photographic filter pack and filter holder for attachment to the front of a camera lens, comprising:

first and second housing members, said first housing member being connected to said second housing member;

said first housing member defining a storage area and including means for storing and retaining a plurality of photographic filters in said storage area;

said second housing member comprising means for removable attachment to the front of a camera lens, and means for slidably receiving filters from said storage area of said first housing member and for retaining received filters in an operative position in registration with a camera lens to which said second housing member is attached; and

said first housing member including means for selectively and slidably feeding any or all of said filters from said storage area within said first housing member to said operative position within said second housing member.

4,383,736

PRESSURE FORMED FIBER OPTIC CONNECTOR

Donald B. Forman, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 24, 1980, Ser. No. 210,114

Int. Cl.³ G02B *7/26*

U.S. Cl. 350—320 **4 Claims**

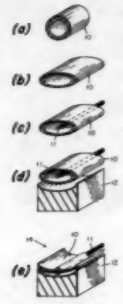
2. A method of fabricating an apparatus for holding and aligning a pair of aligned optical fibers, comprising the steps of: providing an annular tube of deformable material, the de-

formable material is a metal having a stable spring coefficient;

preforming the tube into an oval cross-sectional shape;

inserting a mandrel of predetermined dimensions within the oval-shaped tube, the mandrel is a hardened steel wire;

placing the oval tube and inserted mandrel into an arcuately concave mold;



forming the tube by a high energy process, such as cold working into two arcuately-shaped nested sheets having a circular cross-sectional, longitudinal bore where the nested sheets have been formed around the mandrel; and

removing the mandrel.

4,383,737

DAP TYPE LIQUID CRYSTAL DISPLAY WITH MEANS FOR OBSCURING VIEWING ANGLE RELATED CHANGES IN COLOR

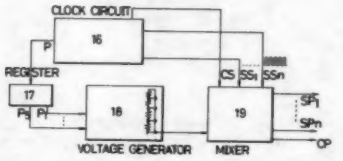
Shinichi Hibino, and Keiji Nakayama, both of Nara, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Mar. 16, 1979, Ser. No. 20,983

Claims priority, application Japan, Mar. 24, 1978, 53-34588

Int. Cl.³ G02F 1/16

U.S. Cl. 350—347 **5 Claims**



1. A display device displaying information comprising:

a DAP type liquid crystal display having a pair of opposing electrodes each carried on a different support and a liquid crystal material sandwiched between said pair of supports, said electrodes including individual segments for displaying said information;

means for selecting individual ones of said segments to provide said information to said display;

drive voltage application means for driving said selected individual ones of said segments with a net energizing voltage which varies periodically within the range of voltages producing DAP effects to periodically change the color of said information displayed on said DAP type display to thereby obscure viewing angle related changes in color.

4,383,738

LIQUID CRYSTAL DISPLAY MEANS

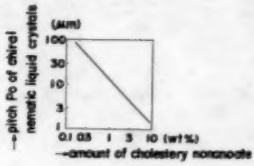
Fumiaki Funada, Yamatokoriyama, and Masatuka Matsuura, Tenri, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 21,886, Mar. 19, 1979, abandoned, which is a continuation of Ser. No. 753,709, Dec. 23, 1976, abandoned. This application May 22, 1981, Ser. No. 266,304

Claims priority, application Japan, Dec. 25, 1975, 50-159335; Aug. 30, 1976, 51-103914

Int. Cl.³ G02F 1/137

U.S. Cl. 350—349 **4 Claims**



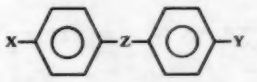
1. A liquid crystal display system comprising:

two electrodes at least one of which is transparent, said two electrodes being disposed on substrates, respectively;

an electric source connected between the electrodes for applying an electric field therebetween;

a pleochroic dye guest material;

a nematic liquid crystal containing an optically active dopant to form a chiral nematic liquid crystal host material wherein the helical axes thereof are aligned perpendicular to the planes of said electrodes in the non-activated state in the absence of an electric field by said electric source and the value of the characteristic pitch of said chiral nematic liquid crystal host material is selected to be from 0.7 to 10 times the thickness of a layer of solution of the dye material and the liquid crystal host material, the difference of relative attitude $\Delta\psi$ between the orientation of the long axes of molecules adjacent one electrode and the orientation of the long axes of molecules adjacent the other electrode of the liquid crystal host material being approximately $\Delta\psi = 2\pi d/Po$, wherein d is the thickness of the solution lying between the electrodes and Po is the characteristic pitch of the liquid crystal host material, at least a portion of said nematic liquid crystal has the formula



wherein X and Y are terminal groups and Z is a bridging group; wherein at least one of said terminal groups contains an alkyl portion including a straight-chain saturated hydrocarbon portion having an even number of carbon atoms which constitutes at least 60% by weight of said liquid crystals; and

a polarizer provided on one of the substrates, thereby providing polarized light, the electric vector of which is parallel to the direction of the long axes of the molecules of said liquid crystal host material adjacent to the electrode on which said polarized light is incident.

4,383,739

MICROSCOPE OBJECTIVE

Walter J. Bogath, Vienna, Austria, assignor to C. Reichert Optische Werke, AG, Vienna, Austria

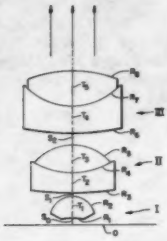
Filed Nov. 12, 1981, Ser. No. 320,644

Int. Cl.³ G02B 21/02

U.S. Cl. 350—414 **2 Claims**

1. A microscope objective which is well corrected for chro-

matic image aberrations, spherical aberration, coma and astigmatism and has three elements aligned along an optical axis, which comprises a concavo-convex positive singlet I as a first



element, a double convex positive doublet II as a second element and a double convex positive doublet III as a third element, said elements having the following optical parameters.

Lens	Radius (R)	Thickness (T)	Spacing (S)	Refractive Index (ND)	Abbe No (ν)
			$S_0=0.145F$		
	$R_1=-1.3146F$				
I		$T_1=0.493F$		$1.57<ND_1<1.59$	$40<\nu_1<43$
	$R_2=-0.4722F$				
			$S_1=0.083F$		
	$R_3=14.1638F$				
		$T_2=0.448F$		$1.69<ND_2<1.71$	$29<\nu_2<31$
II	$R_4=1.6426F$				
		$T_3=0.603F$		$1.51<ND_3<1.53$	$58<\nu_3<60$
	$R_5=-1.0786F$				
			$S_2=0.283F$		
	$R_6=9.1369F$				
		$T_4=0.569F$		$1.68<ND_4<1.70$	$30<\nu_4<32$
III	$R_7=1.4063F$				
		$T_5=0.783F$		$1.51<ND_5<1.53$	$64<\nu_5<66$
	$R_8=-2.7814F$				

1

wherein F is about 2.5 to 3.5 mm.

4,383,740

INFINITY IMAGE VISUAL DISPLAY SYSTEM

Robert Bordovsky, Arlington, Tex., assignor to Rediffusion Simulation Incorporated, Arlington, Tex.

Filed Oct. 31, 1980, Ser. No. 202,682

Int. Cl.³ G02B *27/18, 5/10;* G09B *9/08*

U.S. Cl. 350—504 **6 Claims**

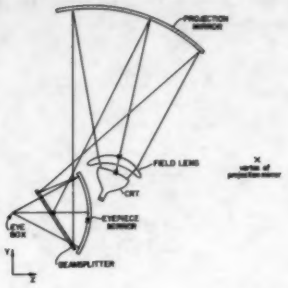
1. An infinity image visual display system including an image source,

an eyepiece mirror disposed remote from said image source for focussing a transmitted image of said image source located at its focal surface at infinity,

means for transmitting said image of said image source from said image source to said focal surface of said eyepiece mirror along a folded, optically offset and non-orthometric path,

a concave compound curved projection mirror selectively positioned in axially offset, non-orthometric relation to said image source to receive and reflect an image of said image source toward the focal surface of said eyepiece mirror,

only one path-folding beamsplitter disposed in the light path between said visual image source and said eyepiece



mirror for cooperatively defining, in association with said selectively positioned projection mirror and image source, said optically offset and non-orthometrically folded image transfer path intermediate said image source and said eyepiece mirror.

4,383,741

BINOCULAR NIGHT TELESCOPE

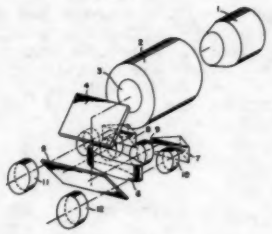
Georg Vogl, Saltsjöbaden; Bo Möller, Bromma, and Michel Söderlindh, Stockholm, all of Sweden, assignors to Aktiebolaget Bofors, Bofors, Sweden

Filed Jan. 27, 1981, Ser. No. 228,839

Claims priority, application Sweden, Feb. 7, 1980, 8000985

Int. Cl.³ G02B *23/12, 23/02*

U.S. Cl. 350—538 **9 Claims**



1. A binocular night telescope comprising:

a large aperture objective lens for focussing an image on an image plane;

a light amplifier having a light receiving surface in said image plane and providing an amplified image to a transmitting image screen end of said amplifier;

a viewing microscope comprising: a collimating lens means for axially displacing said image, inverting said image about a first axis and focussing said image at infinity for an observer including first and second erecting means having at least a part located between the ends of said light amplifier for receiving said axially displaced image and inverting said image about an axis perpendicular to said first axis, thereby forming second and third images;

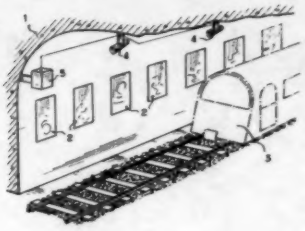
first and second telescope objective lens located for transmitting said second and third images away from said first and second erecting means along optical axes of said microscope; and

first and second ocular lens for viewing images transmitting by said telescope lens.

4,383,742
METHOD AND APPARATUS FOR CREATING THE ILLUSION OF MOVING IMAGES

Roland Brachet, Domaine d'Arnaga, 83810 Callian, and Pierre Boismard, 10, Rue De Castellane, 75008 Paris, both of France

Filed Oct. 27, 1980, Ser. No. 201,033
Claims priority, application France, Oct. 29, 1979, 79 26723
Int. Cl.³ G03B *25/00*
U.S. Cl. 352—100 **8 Claims**

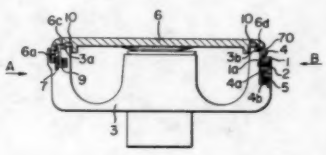


1. An apparatus for generating an animated image when viewed from a location in motion, said apparatus comprising:
(a) a series of images;
(b) an illumination device for the emission of light flashes adapted to illuminate said images;
(c) ignition means for causing a light flash to be emitted each time the location has moved a distance substantially equal to the spacing between two successive images;
(d) signal means for sensing and measuring the velocity of movement of said location relative to said series of images, said signal means being operatively associated with said ignition means whereby a light flash is generated each time said location has moved a distance equal to the spacing between two successive images in said series.

4,383,743
WATER-PROOF CAMERA

Hideyo Nozawa, Ohmiya, and Toshio Dobashi, Kawasaki, both of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

Continuation of Ser. No. 87,789, Oct. 24, 1979, abandoned. This application Mar. 23, 1981, Ser. No. 246,217
Claims priority, application Japan, Oct. 27, 1978, 53-147020[U]; Apr. 6, 1979, 54-41037
Int. Cl.³ G03B *17/08*
U.S. Cl. 354—64 **5 Claims**

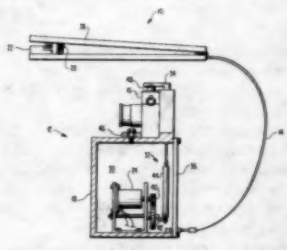


1. A water-proof camera comprising:
(a) a camera body;
(b) a back lid adapted to cover the back side of the camera body;
(c) means for rotatably supporting a side end of the back lid at a side end of the camera body so that the back lid may be closed and opened, the supporting means having a first biasing means for biasing the back lid toward the front of the camera body;
(d) an elastic water-proof member disposed at a marginal area which requires water-proof integrity between the camera body and the back lid and sandwiched between the camera body and the back lid by closure of the back lid;
(e) a retaining member fixed at a second side end of said back lid;
(f) a locking member provided at a second side end of the camera body to be movable between a first position and a second position, the locking member having a cam provided with a first portion and a second portion with which said restraining member is brought into contact; and
(g) a second biasing means disposed between the camera body and the locking member, the second locking member storing its energy in response to the displacement of the locking member from the first position to the second position which displacement is caused by co-operation of the restraining member with the first portion of the cam upon closure of the back lid, and the restoring force of the second biasing means being converted to a force for biasing the back lid toward the front of the camera body by co-operation of the restraining member with the second portion of the cam,
whereby when the back lid is closed the elastic water-proof member is compressed by the first and second biasing means in the thrust direction between the camera body and the back lid biased toward the front of the camera body.

4,383,744
REMOTE CAMERA ACTUATOR

Charles J. O'Connell, 621 Waterloo Rd., Apt. 334, Warrenton, Va. 22186

Filed Apr. 7, 1981, Ser. No. 251,830
Int. Cl.³ G03B *17/38, 29/00*
U.S. Cl. 354—81 **1 Claim**



1. A system for remote actuation of a camera comprising;
a microswitch sensor positioned apart from and providing to said camera a signal indicative of placement of a subject to be photographed at a position relative to said sensor;
means to bias said microswitch to an open position;
a housing holding said camera and disposed to aim said camera at said position;
an actuator located in said housing and receiving said signal, said actuator including a motor driven by said signal;
a source of d.c. power, to drive said motor, disposed in said housing, wherein said microswitch is in series with said source of d.c. power and said motor and closed by the weight of the object, said signal comprising a d.c. voltage to drive said motor so long as said microswitch is closed;
a crank coupled to said motor, a shutter button depression member, gear reduction means coupling said motor to said crank, said gear reduction means determining the extent of crank rotation for each revolution of said motor to groven the minimum number of film frames exposed by said camera for one signal from said sensor, and a flexible linkage coupling said crank to said depression member, wherein for each rotation of said motor said depression member actuates said camera and said linkage restores a shutter button on said camera to an initial position following advancement of a frame.

4,383,745

CAMERA AND AUTOMATIC EXPOSURE CONTROL THEREFOR FOR USE WITH VARIOUS TYPES OF FLASH UNITS

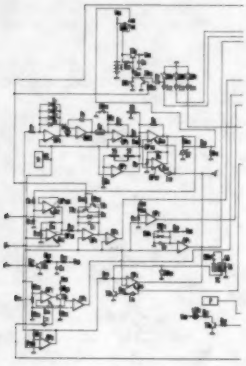
Masaharau Kawamura, Kawasaki; Masanori Uchidoi, Yokohama; Yoshihiro Shigeta, Tokyo; Yoji Sugiura, and Hiroshi Yamamoto, both of Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 28, 1980, Ser. No. 115,748

Claims priority, application Japan, Jan. 31, 1979, 54-10194; Jan. 31, 1979, 54-10198

Int. Cl.[3] G03B *15/05*

U.S. Cl. 354—149 4 Claims



1. An automatic exposure control device for a single lens reflex camera having a curtain type shutter and adapted to operate with a flash device capable of producing a charge completion signal, comprising:

switchover means for automatically shifting from an automatic exposure photographic mode to a flash mode and vice versa, said switchover means having an input terminal and being arranged to effect a switchover to the flash mode when a charge completion signal from the flash device is applied to said input terminal;

signal producing means for producing a signal of predetermined level corresponding to the charge completion signal;

a terminal capable of receiving the charge completion signal from the flash device;

a connection line arranged to electrically connect the input terminal of the switchover means and said terminal to each other; and

switch means having one end connected directly to the connection line and another end being arranged to perform a switching action to apply the signal of the predetermined level of said signal producing means to the input terminal of said switchover means, said switchover means being arranged to effect a switchover to the flash mode in response to the switching action in the same manner as when the charge completion signal is applied thereto; and

mode setting means without a manual photographic mode, said means having a setting position for an automatic exposure photographic mode and a setting position for a flash photographic mode, and causing the switch means to act so as to generate a predetermined level of signal from the signal producing means when it is at the flash photographic mode position, and causing the switch means to act so as to prevent the generation of the predetermined level of signal from the signal producing means when it is at the automatic exposure photographic mode position.

4,383,746

MULTIEXPOSABLE MOTOR-DRIVE-FILM-WINDING CAMERA

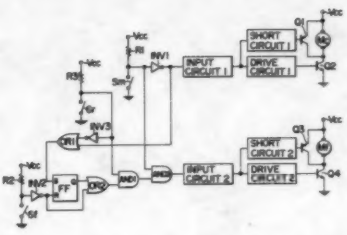
Kazuhisa Aratame, Hachioji, Japan, assignor to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Filed May 8, 1981, Ser. No. 261,947

Claims priority, application Japan, May 15, 1980, 55-63428

Int. Cl.[3] G03B *1/18*

U.S. Cl. 354—173 2 Claims



1. In a multiple exposure camera having a shutter cocking motor and a film-winding motor, a source of power for said motors, means responsive to a shutter release completion signal for normally energizing said motors from said source of power to effect cocking of the camera and subsequently effect a one-frame advance of film, changeover means energizing said shutter cocking motor while maintaining said film-winding motor in the deenergized condition for a sufficient time to effect a double exposure, and means following a double exposure for overriding said changeover means and effecting normal energization of both motors in response to a shutter release completion signal.

4,383,747

WINDING UP DEVICE FOR CAMERA

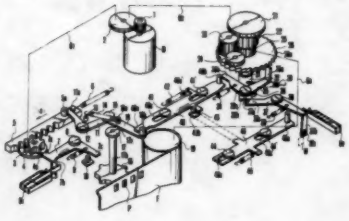
Nobuo Tezuka, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 16, 1981, Ser. No. 283,882

Claims priority, application Japan, Jul. 23, 1980, 55-104892[U]; Jul. 25, 1980, 55-102578; Aug. 8, 1980, 55-108840

Int. Cl.[3] G03B *17/42*

U.S. Cl. 354—173 10 Claims



1. A winding device for a camera including:

(a) driving means;

(b) a spool for winding film;

(c) transmission means for transmitting the driving power of said driving means to said spool;

(d) charge means driven by the driving power of said driving means for charging an exposure determining mechanism of said camera, said charge means returning to an operation starting position when a charging of said exposure determining mechanism of the camera is completed and the driving power of said driving means is not transmitted; and

(e) changeover means responsive to winding of film by one frame on said spool for moving said transmission means to a transmission disabled position and responsive to return of said charge means to an operation start position for moving said transmission means to a transmission enabled position.

4,383,748

CASSETTE FOR FILM UNITS

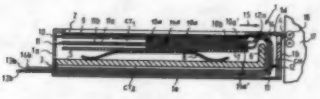
Berthold Fergg; Viktor Osegowitsch, both of Taufkirchen, and Wolfgang Viehrig, Munich, all of Fed. Rep. of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 97,719, Nov. 27, 1979, abandoned. This application Dec. 7, 1981, Ser. No. 328,382

Claims priority, application Fed. Rep. of Germany, Nov. 30, 1978, 2851891

Int. Cl.³ G03B *19/10*

U.S. Cl. 354—179 20 Claims



1. A cassette comprising a stack of film units each having at least two overlapping sheets, one of said sheets including a leader portion, each of said film units further including a flexible first withdrawing element which comprises a first portion separably secured to the corresponding unit and a second portion, extending beyond the leader of the respective unit; a cover sheet interposed between each pair of film units in said stack, each of said cover sheets having a substantially white surface and including a second withdrawing element; and a housing for said stack and said cover sheets having an aperture for exposure of successive film units of said stack to light, said aperture facing said white surfaces of said cover sheets, and said housing being provided with a first opening for expulsion of said film units therefrom and a second opening for expulsion of said withdrawing elements and cover sheets therefrom, said housing including means for deflecting said second withdrawing elements and second portions of said first withdrawing elements towards said second opening, and said second withdrawing elements and second portions of said first withdrawing elements extending through and outwardly beyond said second opening, said deflecting means and second portions of said first withdrawing elements being arranged such that extraction of said second portions of said first withdrawing elements from said housing via said second opening causes the leaders of the corresponding film units to enter said first opening.

4,383,749

AUTOMATIC EXPOSURE CONTROL SYSTEM

Nobuhiko Shinoda, Tokyo, and Nobuaki Sakurada, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 967,099, Dec. 7, 1978, abandoned. This application May 30, 1980, Ser. No. 154,537

Claims priority, application Japan, Dec. 8, 1977, 52-147599

Int. Cl.³ G03B *7/095*

U.S. Cl. 354—23 D 10 Claims

1. An exposure control device for a camera comprising:

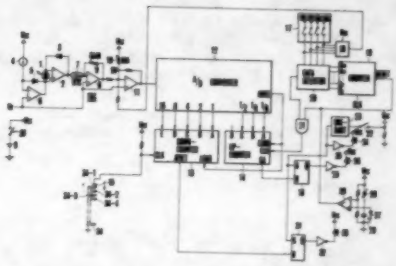
(a) a light measuring circuit for producing an output corresponding to an object brightness;

(b) shutter speed input means for presetting shutter speed information;

(c) a diaphragm signal forming circuit for producing an output corresponding to the output from said light measuring circuit and the shutter speed information of said shutter speed input means;

(d) a diaphragm control mechanism for defining the value of a diaphragm aperture, said mechanism having a predetermined diaphragm control accuracy and being arranged for regulating the aperture value, in step units of the aperture value, corresponding to said accuracy;

(e) a memory circuit having a first memory portion for memorizing one divided part of a digital value of said diaphragm signal forming circuit output corresponding to the step units and having a second memory portion for memorizing an other part of the digital value of said diaphragm signal forming circuit output corresponding to values of less than a step unit, so that pre-divided parts of



the digital value are memorized separately in the first memory portion and the second memory portion;

(f) a diaphragm control circuit connected to the first memory portion of said memory circuit for controlling said diaphragm control mechanism on the basis of the memorized value memorized in said first memory portion, irrespective of the value memorized in the second memory portion; and

(g) a shutter time control circuit for controlling the shutter time on the basis of said shutter speed information in said shutter speed input means and the memorized value memorized in said second memory portion including values less than a step unit, irrespective of the value memorized in the first memory portion.

4,383,750

DRIVE CONTROL DEVICE IN CAMERA

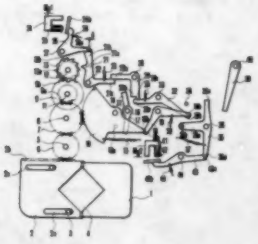
Tomonori Iwashita, Fuchu, and Hidehiko Fukahori, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 16, 1981, Ser. No. 321,525

Claims priority, application Japan, Nov. 22, 1980, 55-165070

Int. Cl.³ G03B *9/02*

U.S. Cl. 354—271 6 Claims



1. A drive control device in a camera comprising:

electromagnetic drive means;

drive means for actuating said camera;

a stopping member for stopping the driving of said drive means;

a biasing member;

a control member actuated by said electromagnetic drive means operative to perform a shifting operation while resisting the biasing power of said biasing member by the attractive force of said electromagnetic drive means when power is supplied to said electromagnetic drive means to thus initiate a stopping operation of said stopping member; and

a prohibiting member for prohibiting said stopping member from movement until the driving of said drive means is initiated.

4,383,751

DEVELOPING APPARATUS WITH A ROTATABLE BRUSH HAVING A PROTECTIVE HOOD

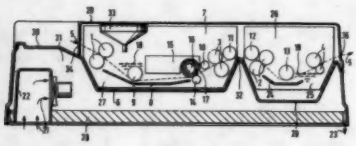
Eberhard Schörnig, Taunusstein, and Klaus Kuemmerl, Nuremberg, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Oct. 27, 1981, Ser. No. 315,283

Claims priority, application Fed. Rep. of Germany, Oct. 28, 1980, 8028682[U]

Int. Cl.³ G03D *3/08*

U.S. Cl. 354—322 **4 Claims**



1. In a developing apparatus for sheet material including a double-tank combination equipped with removable inserts for transport and guide means which convey the material on a curved path through the processing liquids,

the improvement which comprises rotatable brush roller means and an elastically supported counter roller means disposed upstream of a discharge area of a developer tank, protective hood means covering said brush roller means, the rear bottom edge of said hood means, as viewed in the direction of travel, extending below the level of a developer liquid, pairs of transport roller means, rotatable deviating roller means at the coated side of the material, and stationary guide means at the reverse side of the material, for transporting the material through said tanks.

4,383,752

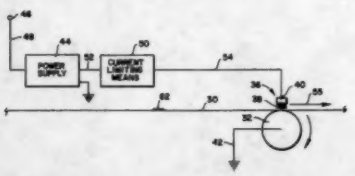
CONTINUOUS-DUTY BRUSH POLARIZER

Semyon Kisler, West Newton, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Jan. 5, 1981, Ser. No. 222,337

Int. Cl.³ G03G *15/02*

U.S. Cl. 355—3 CH **8 Claims**



1. Improved apparatus for regulating electrostatic charges on charge-retaining materials, comprising:

a common electrical conductor;

means for establishing an electrically conductive reference surface;

a multiplicity of electrically conductive elongated bristles supported over said reference surface with one end of said bristle being in an electrically coupled relation to said common conductor, said bristles extending from their said one end toward said reference surface with the free ends of said bristles being adjacent said reference surface;

a DC power source connected between said common electrical conductor and said reference surface, the potential of said power source having a predetermined magnitude and polarity for establishing an electric field that will adjust the electrostatic charge to the desired charge level on charge-retaining material passed between said free bristle ends and said reference surface; and

means for limiting the electrical current available to said bristles from said power supply to less than a magnitude that will cause a deformation of a free end of said bristles when the said free end comes in contact with conductive material electrically coupled to said reference surface.

4,383,753

IMAGE FORMATION APPARATUS

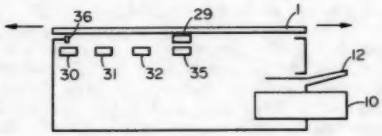
Tsuneki Inuzuka, Machida; Masato Ishida, and Yoshihiro Kawatsura, both of Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 8, 1980, Ser. No. 166,963

Claims priority, application Japan, Jul. 16, 1979, 54-91158

Int. Cl.³ G03G *15/00, 15/28*

U.S. Cl. 355—8 **11 Claims**



1. Image formation apparatus comprising:

a reciprocally movable member for scanning an original document;

means for forming an image on the basis of the scanned image by said reciprocally movable member;

first drive means for moving said reciprocally movable member in one direction;

second drive means for moving said reciprocally movable member in the opposite direction; and

control means for energizing said second driving means to stop said reciprocally movable member at a predetermined position when said reciprocally movable member is moving in said one direction.

4,383,754

MULTI-BOUNCE, FOLDED PATH SCANNING SYSTEM

David Kleinschmitt, Bethel, Conn., assignor to Pitney Bowes Inc., Stamford, Conn.

Filed Nov. 20, 1981, Ser. No. 323,154

Int. Cl.³ G03G *15/28, 15/32*

U.S. Cl. 355—8 **4 Claims**

1. A multi-bounce, folded path scanning system, comprising:

a first and second pair of stationary tracks, said second pair of tracks being angled with respect to said first pair of tracks;

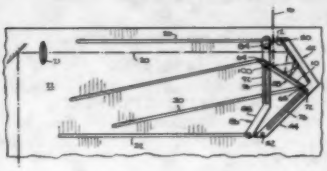
a movable carriage slidably mounted on said first pair of stationary tracks;

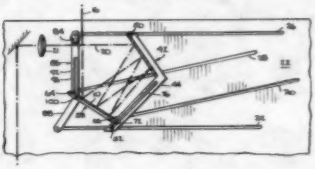
a first mirror fixedly mounted on said movable carriage;

a second mirror slidably mounted on said second pair of stationary tracks and opposing said first mirror and forming an acute angle therewith, said mirrors being separated

by a predetermined distance, whereby one end of said mirrors is more open than the other end of said mirrors;

means for directing an input light ray into the more open end of said mirrors such that said input light ray is incident upon said first mirror at a predetermined angle, wherein said ray is reflected off each mirror a predetermined multi-





plicity of times and exits said mirrors at the more open end; and

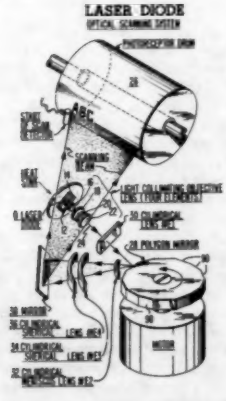
means for translating said first and second mirrors, wherein the predetermined distance between the mirrors increases as the mirrors are translated while the correct angular relationship between the mirrors is maintained.

4,383,755

UNITARY, MODULAR, DEMOUNTABLE OPTICAL SYSTEM FOR LASER DIODE/PRINTING COPYING APPARATUS

Richard C. Fedder, Longwood; George C. Schafner, Orlando; Thomas Robson, Orlando, and Thomas F. McMahon, Orlando, all of Fla., assignors to Burroughs Corporation, Orlando, Fla.

Filed Jan. 11, 1982, Ser. No. 338,558
Int. Cl.³ G03G *15/04*
U.S. Cl. 355—11 **10 Claims**



1. Optical scanning system for laser diode printing apparatus utilizing a folded light beam path comprising,

a rotatable photoreceptor drum capable of receiving a latent photo-optical image of intelligible indicia thereon,

solid state laser light beam generating means,

a rotatable polygon multi-facet mirror assembly for causing said light beam to scan the drum in a horizontal direction,

optical light collimating means for collimating the beam from said laser light generating means,

means focussing the light beam from said collimating means into a line image on a facet of said polygon mirror assembly,

means focussing the scanned light beam to a small dimension in the horizontal direction on the photoreceptor drum,

multiple optical means in the focus of said scanned light beam providing cross-scan focussing in the vertical direction producing the same function as toroidal lenses but having surface characteristics which are simple and easier to fabricate, and

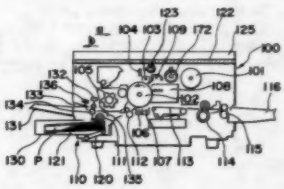
reflecting means adjustably disposed in the path of said scanned light beam for folding said light beam back upon itself for impingement on said photoreceptor drum.

4,383,756

COUNTER CONTROL IN ELECTROPHOTOGRAPHIC COPIER

Hiroyuki Hanamoto, and Yoshihiro Horie, both of Toyokawa, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Jul. 7, 1981, Ser. No. 281,046
Claims priority, application Japan, Jun. 4, 1981, 56-86496
Int. Cl.³ G03G *15/00*
U.S. Cl. 355—14 CU **7 Claims**



1. A counter control device for use in an electrophotographic copying machine arranged to be operable selectively in one of a multi-copy mode wherein a copying operation is repeated to produce a plurality of copies, with copying papers being automatically fed one at a time and a manual feed mode wherein the copying operation is carried out by the use of copying papers fed manually one at a time, said counter control device comprising:

a counter means for performing a counting operation each time one cycle of copying operation in the multi-copy mode completes;

a display means for displaying a numerical figure in association with count contents of said counter means, a manual feed mode counter capable of performing a counting operation each time one cycle of copying operation in the manual feed mode completes;

a setting means for causing said manual feed mode counter to be operative; and

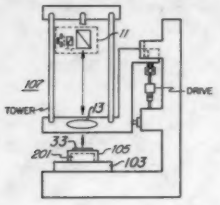
a control means for causing said display means to display count contents of said manual feed mode counter means only when the copying operation in the manual feed mode is performed with said manual feed mode counter means being made operable by said setting means.

4,383,757

OPTICAL FOCUSING SYSTEM

Edward H. Phillips, Mountain View, Calif., assignor to Optimetrix Corporation, Mountain View, Calif.

Continuation of Ser. No. 25,917, Apr. 2, 1979, abandoned. This application Sep. 2, 1980, Ser. No. 183,402
Int. Cl.[3] G03B 27/42; G01J 1/20
U.S. Cl. 355—53 46 Claims



1. A kinematic system for positioning a utilization device parallel to a selected plane, said system comprising:

a base structure;

a plurality of spaced drive means for supporting the utilization device for translational movement along a first axis normal to a plane of the base structure and for rotational movement about second and third axes orthogonal to the first axis and parallel to said plane of the base structure; and

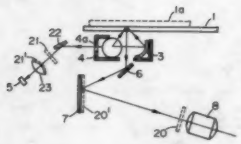
constraining means, including the drive means, for kinematically constraining the utilization device to move only along the first axis and about the second and third axes.

4,383,758

COPYING APPARATUS

Harushisa Honda, and Tsutomu Toyono, both of Tokyo, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 138,972, Apr. 10, 1980, abandoned. This application Jul. 29, 1981, Ser. No. 288,162
Claims priority, application Japan, Apr. 13, 1979, 54/45201
Int. Cl.[3] G03B 27/74
U.S. Cl. 355—68 17 Claims



1. A copying apparatus provided with original illuminating light source means whose light has a relative spectrum distribution variable with time, said apparatus comprising:

an image forming optical system for directing the light from an original illuminated by said light source means to a photosensitive medium to form the image of said original on said photosensitive medium;

a light detecting element irradiated with the light emitted from said light source means, said element forming a signal corresponding to the quantity of light to which it responds;

means for controlling the quantity of light emitted from said light source means in response to said signal so as to maintain said signal substantially constant;

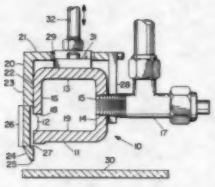
spectrum distribution correcting means disposed in one of the optical paths from said light source means to said light detecting element, and from said light source means to said photosensitive means, said means correcting the spectrum distribution of the light passing therethrough so that, irrespective of the variation with time in the relative spectrum distribution of the light emitted from said light source means, the quantity of light to which said light detecting element responds substantially corresponds to the quantity of light to which said photosensitive medium responds.

4,383,759

METHOD AND APPARATUS FOR PRODUCING A CAPPED PRINTING PLATE

William Bloothoofd, Wilmington, Del., and Norman E. Hughes, Landenberg, Pa., assignors to Hercules Incorporated, Wilmington, Del.

Continuation-in-part of Ser. No. 161,846, Jun. 23, 1980, abandoned. This application Nov. 25, 1981, Ser. No. 324,936
Int. Cl.[3] G03B 27/04
U.S. Cl. 355—85 3 Claims



1. An apparatus to provide uniform overlapping layers of two liquid photopolymerizable resin materials on a platemaking surface in the manufacture of a capped printing plate from said resin materials, said apparatus comprising:

a platemaking surface;

a first manifold, vertically adjustable, spanning the width of the platemaking surface and moveable along the lengthwise direction of said surface, which manifold is approximately C-shaped in cross-section having a closed upper side and bottom side, a forward facing side having a plurality of openings for the attachment of resin supply tubes and a back facing side depending toward but not in contact with the back edge of said bottom side and defining an opening across the length of said manifold adjacent said bottom side, and closed ends;

means to vertically adjust said first manifold upward and downward;

a vertically nonadjustable first gate mounted against the back facing side of said first manifold and being essentially the same length as said first manifold, which gate has a back facing exterior surface, a forward facing interior surface, a top edge and a bottom edge, the lower portion of the exterior surface being beveled downward at an angle toward the bottom edge of the interior surface to form a doctor blade along the bottom edge of said gate, the said first gate being mounted against the back facing side of the first manifold so that the bottom edge of the gate extends below the bottom side of said first manifold, said first gate having a cutaway portion along its interior surface adjacent the opening in the back facing side of said first manifold forming, when said first manifold is adjusted vertically upward, a passageway between the cutaway portion of the interior surface of said gate and the back edge of the bottom side of said first manifold, thereby defining a first adjustable orifice slot extending the length of the opening in the first manifold, and when said first manifold is adjusted vertically downward, completely closing the said first orifice slot;

means to supply a regulated flow of first liquid photopolymerizable resin material from a first pressurized external reservoir through said resin supply tubes attached to said plurality of openings in said first manifold; and,

a second manifold, vertically nonadjustable, spanning the width of the platemaking surface and essentially the same length as the first manifold, said second manifold being positioned directly behind the first manifold and moveable in tandem with said first manifold along the lengthwise direction of said surface, said second manifold being approximately C-shaped in cross-section having a closed bottom side having a wedge shaped lip projecting downward from its forward edge and forming a doctor blade, the distance between the bottom of the wedge shaped lip and the platemaking surface being greater than the distance between the bottom edge of the first gate and the platemaking surface, a closed back facing side, an upper side having a plurality of openings for the attachment of resin supply tubes, a forward facing side depending toward but not in contact with the forward edge of said bottom side and defining an opening across the length of said second manifold adjacent said bottom side, and closed ends;

a second gate being essentially the same length as said second manifold, disposed before the opening in the second manifold and vertically adjustable so that, when adjusted upward, its lower edge will define with the opening in the second manifold a second adjustable orifice slot extending the length of the opening in the second manifold and when adjusted downward, completely closing the said second orifice slot;

means to vertically adjust said second gate upward and downward;

means to prevent air from entering between the second gate and the upper section of the forward facing side of the second manifold; and

means to supply a regulated flow of second liquid photopolymerizable resin material from a second pressurized external reservoir through said resin supply tubes attached to said plurality of openings in said second manifold.

4,383,760

DEVICE FOR POSITIONING AN OBJECT RELATIVE TO A CARRIER MEANS

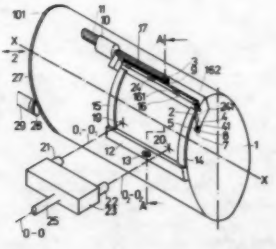
Christhard Deter, 27, Brehmstra.; Klaus Hiller, 14, E.-Selbmann-Str.; Ulrich Laack, 4/6 Kahlaer Str.; Reiner Leuschner, 17, Otto-Rothe-Str., and Jörg Wünderlich, 10, Freiligrathstr., all of Gera, German Democratic Rep.

Filed Jan. 19, 1981, Ser. No. 226,754

Claims priority, application German Democratic Rep., Jan. 31, 1980, 218752

Int. Cl.³ G01B *11/26*

U.S. Cl. 356—150 **4 Claims**



1. Device for positioning an object, particulary a photographic film being provided with at least one positioning mark, relative to a surface of a cylinder rotatable about an axis, comprising:

a recess in said cylinder extending to said surface of said cylinder in parallel to said axis,

a mounting piece displaceably arranged in said recess in parallel to said axis,

a seating being arranged at one end of said recess,

a displacing means for displacing said mounting piece in and along said recess,

said displacing means being seated in said seating,

a connecting member having two end portions,

one end portion being connected to said displacing means,

the other end portion being connected to said mounting piece,

a first bar being resiliently connected and substantially in parallel to said mounting piece,

a second bar being displaceably arranged relative to said cylinder surface and being secured to said cylinder,

said first bar and said second bar being substantially in parallel to each other in spaced relation,

two strips being arranged between neighboring end portions of said first and said second bar and being secured thereto,

said film being tensioned between said first bar and said mounting piece and being arranged between said second bar, said two strips and said cylinder surface,

drive means for rotating said cylinder about said axis of rotation, and

a measuring microscope for observing and aligning said reference mark on said film relative to the optical axis of said microscope,

said measuring microscope being arranged in spaced relation to said cylinder,

the optical axis of said measuring microscope being substantially at right angles to the axis of rotation.

4,383,761

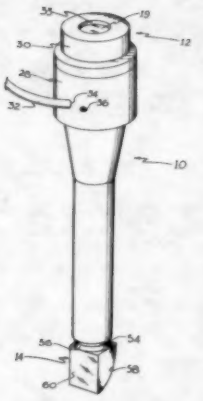
SCOPE FOR VIEWING THE INTERNAL SURFACE OF BORES AND SIMILAR CAVITIES

Ira D. Jones, 1023 S. Main St., South Bend, Ind. 46601

Filed Oct. 30, 1980, Ser. No. 202,142

Int. Cl.³ G01N *21/90*

U.S. Cl. 356—241 **14 Claims**



1. A scope for viewing the internal surface of a bore or similar cavity for use in combination with a light source comprising a light transmitting rod having an axis and including an image transmitting end and an image viewing end, light diffusing and reflecting means located at said rod viewing end, a housing having an annular side wall surrounding said diffusing and reflecting means and a bore in said side wall adjacent said diffusing and reflecting means, said housing bore extending through said housing side wall for directing light from said light source into said diffusing and reflecting means, said diffusing and reflecting means for directing said light from said light source along said rod axis towards said rod image transmitting end when said light source is inserted into said housing side wall bore, said rod image transmitting end for reflecting said light onto said cavity surface and for reflecting an image

of said cavity surface along said rod axis toward said rod viewing end, said rod having a neck formed at the upper end thereof, said neck having an upper end face, said neck being of smaller diameter than said rod to form a shoulder in the rod, said diffusing and reflecting means constituting an optically clear ring, said ring including an annular side wall having an upper end face and a lower end face, light diffusing and reflecting surfaces formed in said ring side wall, said ring rotatably mounted on said rod neck within said housing with its said lower end face abutting said rod shoulder, said ring side wall having an opening therein which is aligned with said housing side wall bore, said ring side wall opening for receiving the light from said light source, said diffusing and reflecting surfaces for transmitting light along said rod towards its said image transmitting end, said neck upper end face forming an optical surface for viewing an image of said cavity surface, whereby said cavity surface is viewable at said viewing end when said rod is inserted into said cavity.

4,383,762

TWO-BEAM INTERFEROMETER FOR FOURIER SPECTROSCOPY WITH RIGID PENDULUM

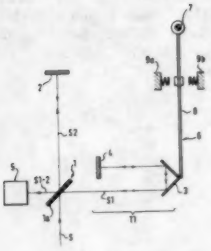
Peter Burkert, Munich, Fed. Rep. of Germany, assignor to Kayser-Threde GmbH, Munich, Fed. Rep. of Germany

Filed Feb. 10, 1981, Ser. No. 233,235

Claims priority, application Fed. Rep. of Germany, Feb. 14, 1980, 3005520

Int. Cl.³ G01B 9/02

U.S. Cl. 356—346 **9 Claims**



1. A two-beam interferometer for Fourier spectroscopy, particularly for measuring radiation in cryostats aboard spacecraft, including a beam splitter arranged in the path of a source beam, a first reflector, a second movable retroreflector, and a detector system for recording the measured radiation, characterized by:

(a) rigid pendulum means rotatably mounted to swing in a single plane, and

(b) means mounting the movable retroreflector to the pendulum means spaced from the center of rotation of the pendulum means as part of a fully compensated optical system which is immune to tilting and transverse movement distortions.

4,383,763

CONTROLLABLE MIRRORS

Thomas J. Hutchings; David C. Grant, Jr., both of Thousand Oaks, and Gary D. Babcock, Mission Viejo, all of Calif., assignors to Litton Systems, Inc., Beverly Hills, Calif.

Continuation of Ser. No. 74,619, Sep. 12, 1979, abandoned. This application May 8, 1981, Ser. No. 261,851

Int. Cl.³ G01B 9/02

U.S. Cl. 356—350 **15 Claims**

1. In combination:

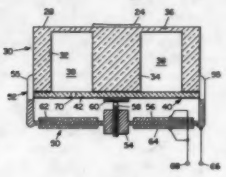
a pair of substantially parallel spaced-apart flexible membranes, the radial boundaries of said membranes being circularly symmetrical about a common axis;

a first rigid rim member connecting the outer boundaries of said membranes;

a rigid central post member positioned for translation along said axis and connecting the inner boundaries of said membranes;

a rigid hub member axially positioned and adjacent and coaxial with a first end of said central post member, including bearing means attached to said hub member and bearing upon said first end of said central post member;

a metallic membrane attached at its inner boundary to said hub member and, in its undeflected condition extending radially from said hub member;



a second rim member including axially-directed flexible members on the edge thereof attached to said first rigid rim member and a rigid portion attached to the outer boundary of said metallic membrane;

a pair of piezoelectric wafers positioned and attached to opposite surfaces of said metallic membrane;

means for applying control voltage between said metallic membrane and the other surfaces of said piezoelectric wafers; and

a mirror positioned on the second end of said central post member with its reflecting surface directed away from said flexible membranes and symmetrical with respect to said axis.

4,383,764

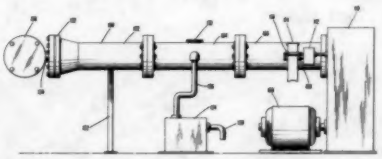
APPARATUS FOR CONTINUOUS EXTRUSION WITHOUT REVERSE FLOW OF MATERIAL

Leon Sloin, 1900 S. Ocean Blvd., No. 9L, Pompano Beach, Fla. 33062

Filed May 12, 1981, Ser. No. 262,897

Int. Cl.³ B43K 21/08

U.S. Cl. 366—75 **14 Claims**



1. An apparatus for continuous extrusion of a material without reverse flow of material, comprising:

a hollow barrel having a cylindrical chamber portion and a frusto-conical chamber portion diverging outwardly from said cylindrical chamber portion;

a threaded screw rotatably positioned coaxially within said hollow barrel, said screw having a threaded cylindrical screw portion located within said cylindrical chamber portion and a threaded frusto-conical portion located within said frusto-conical chamber portion diverging from said cylindrical screw portion, said screw threads defining a cylindrical outer surface conforming to the inner surface of said cylindrical chamber portion and a tapered outer surface conforming to the inner surface of said frusto-conical chamber portion;

inlet means for feeding the material into said hollow barrel;

driving means coupled to said screw for rotating said screw within said barrel so as to force the material to flow axially through said barrel in a forward direction toward an outlet end of said barrel adjacent said frusto-conical chamber portion opposite said cylindrical chamber portion;

outlet means connected to said outlet end of said barrel for expelling the material accompanied by a reverse pressure resulting from the resistance of said outlet means to said forward flow of the material,

said tapered outer surface of said screw cooperating with said inner surface of said frusto-conical chamber portion and forming a seal in response to said reverse pressure exerting a force on said threads of said frusto-conical portion in a direction opposite to said forward flow of the material, whereby reverse flow of the material between said screw and barrel in said opposite direction is prevented; and

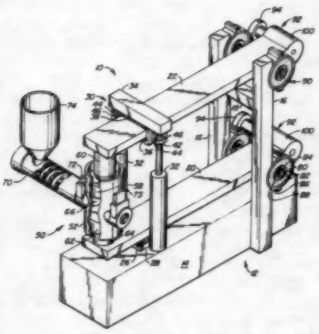
adjusting means coupled to said screw for axially displacing said screw by a predetermined amount thereby controlling the contact between said tapered outer surface of said screw and said inner surface of said frusto-conical chamber portion.

4,383,765

RESONANTLY-POWERED PLASTICIZER

Raymond A. Gurries, Reno, Nev., assignor to Resonant Technology Company, Sparks, Nev.

Filed Dec. 7, 1981, Ser. No. 328,297
Int. Cl.³ B28C 7/04
U.S. Cl. 366—76 **9 Claims**



1. An apparatus for plasticizing plastic feed material, said apparatus comprising:

a supporting frame;

a first resonant beam having anti-nodes at each end and nodes spaced inward from the ends;

a second resonant beam having substantially similar dimensions and resonant characteristics as the first resonant beam;

means for horizontally supporting the first and second resonant beams on the frame so that said beams lie in an opposed relationship with one beam above the other and with the nodes and anti-nodes aligned;

a chamber mounted on the frame and substantially between an aligned pair of anti-nodes, said chamber having opposed walls located adjacent said aligned pair of anti-nodes; and

means for inducing a lateral wave in each of the beams at or near its resonant frequency whereby the walls of the chamber are caused to periodically vibrate toward each other to plasticize the material therein.

4,383,766

BIN WITH PNEUMATIC AGITATOR PANEL

Hans E. Eriksson, Sjöviksvägen 21, S-144 00 Rönninge, Sweden

Filed Aug. 5, 1981, Ser. No. 290,112
Int. Cl.³ B01F 11/00, 13/02
U.S. Cl. 366—106 **1 Claim**

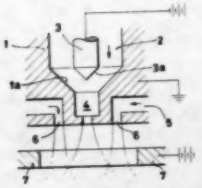
1. In a bin for receiving pulverulent and similar slow moving materials, a pneumatic agitator panel for agitating material in the bin, mounted to and extending over a portion only of a bounding wall inside the bin and comprising a sheet backing capable of being deformed to a limited extent without breaking or cracking; a covering of flexible material extending over the backing at one side thereof facing the interior of the bin and attached to the backing at the edges thereof, said covering being loose and free to pulsate over a substantial part of the surface of said one side of the backing; and pulsator means outside the bin for providing pulses of pressurized gas and a tube for supplying such pulses of pressurized air in between the backing and the covering, connected to the backing and opening at said one side thereof, so as to impart an oscillating movement to the covering, said tube extending through said bounding wall to the outside of the bin; securing means on said tube, engaging said bounding wall; at least one clamp rail extending along at least part of an upper edge of the agitator panel; and means securing the rail to said bounding wall with said rail abutting the panel at said one surface thereof to edge the panel with said bounding wall.

4,383,767

METHOD FOR BLENDING BY COMBINING FINE PARTICLES

Morio Jido, Tokyo, Japan, assignor to Agency of Industrial Science & Technology and Ministry of International Trade & Industry, both of Tokyo, Japan

Filed Nov. 4, 1980, Ser. No. 203,901
Claims priority, application Japan, Nov. 5, 1979, 54/142902
Int. Cl.³ B01F 3/20, 3/08
U.S. Cl. 366—154 **5 Claims**



1. A method for blending two substances having different dielectric constants, which comprises the steps of passing one of the substances having a lower dielectric constant through an electric field formed by a first electrode with facing discharge surfaces, the first electrode being shaped for generating a corona discharge, applying a high voltage of a first polarity to the first electrode for forming the electric field and generating

the corona discharge whereby the one substance is ionized, finely divided and dispersed, applying a high voltage of a second polarity opposite to the first polarity to a second annular electrode having an annular opening, passing the finely divided and dispersed substance through the center of the annular opening of the second electrode, passing the other one of the substances having a higher dielectric constant through the annular opening of the second electrode so as to surround the one finely divided and dispersed substance whereby the other substance is ionized, finely divided and dispersed, the two ionized, finely divided and dispersed substances having charges of opposite polarities, and causing the oppositely charged, finely divided and dispersed substances to come into contact with each other immediately.

4,383,768

STIRRING APPARATUS

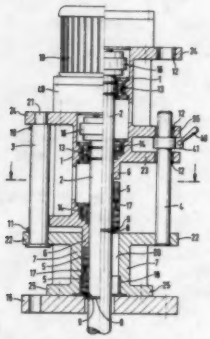
Dieter Kupka, Postfach 59, Binger Landstrasse 37a, 6570 Kirn, Fed. Rep. of Germany

Continuation of Ser. No. 140,507, Apr. 15, 1980, abandoned. This application Apr. 30, 1982, Ser. No. 373,641

Claims priority, application Fed. Rep. of Germany, Nov. 15, 1979, 2946126

Int. Cl.³ B01F *15/00*

U.S. Cl. 366—279 **13 Claims**



1. A stirring apparatus arranged to be sealingly mounted to a container filled with material to be stirred, comprising:

a mounting flange arranged to be placed tightly around the container;

drive means;

an axially extending stirring shaft arranged to extend through said mounting flange into the container for supporting a stirring tool at one end which extends into the container and driven at its other end located outwardly from the container and remote with the mounting flange by said drive means;

sealing means enclosing said stirring shaft and disposed on the side of the mounting flange arranged to face outwardly from the container for sealing the stirring shaft from the contents of the container;

a load bearing intermediate housing laterally encircling said stirring shaft and extending between said mounting flange and said drive means, said housing having an axially extending annular chamber adjacent said mounting flange for receiving said sealing means in closely fitting contact, said load bearing intermediate housing having at least one portion extending in the axial direction of said stirring shaft spaced from said mounting flange and supporting said drive means, said portion includes means for axially guiding said portion and said means includes at least one hydraulic cylinder for guidingly displacing said portion along with at least the part of said stirring shaft laterally encircled by said portion and said sealing means toward and away from said mounting flange for affording access for the replacement of said sealing means.

4,383,769

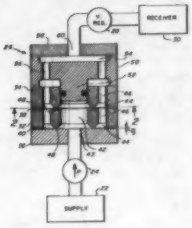
HOMOGENIZING APPARATUS AND METHOD

William D. Pandolfe, Billerica, Mass., assignor to Gaulin Corporation, Everett, Mass.

Continuation-in-part of Ser. No. 116,601, Jan. 29, 1980, Pat. No. 4,352,573. This application Jan. 12, 1981, Ser. No. 224,108

Int. Cl.³ B01F *5/06*

U.S. Cl. 366—337 **36 Claims**



1. A valve assembly for homogenizing or mixing a fluid comprising valve members stacked within a housing and defining a central chamber and a peripheral chamber within the housing, at least one of the valve members having an annular valve seat protruding axially therefrom and spaced from an adjacent valve member by rigid spacing means to provide a valve slit between the central and peripheral chambers through which fluid is expressed, the spacing means being positioned between the valve members radially from the valve seat, wherein:

the valve members are clamped together with rigid spacing means therebetween by means of a rigid actuator operative from the exterior of said housing to exert a variable axial clamping force on an end valve member, which force is concentrated radially from rigid spacing means associated with said end valve member for flexing that valve member to adjust the gap of a valve slit formed by said end valve member.

4,383,770

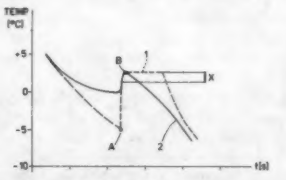
APPARATUS FOR DETERMINING THE FREEZING POINT OF A LIQUID ON OR FROM A ROAD SURFACE

Marcel Boschung, Schmitten, and Walter Zehnder, St. Antoni, both of Switzerland, assignors to Boschung Mecatronic AG, Canton of Fribourg, Switzerland

Filed Jul. 9, 1981, Ser. No. 281,599

Int. Cl.³ G01N *25/04*

U.S. Cl. 374—25 **7 Claims**



1. Apparatus for determining the freezing point of a liquid lying on or taken from a roadway, of the type having chilling means and a thermometer probe for measuring the temperature of the liquid, wherein the improvement comprises:

a heat-conductive plate having a surface for contacting the liquid a recess in the central area thereof,

means for heat-conductively connecting said plate to said chilling means,

a heat-insulating material disposed in said recess, said thermometer probe being embedded in said material,

circuit means connected to said thermometer probe for establishing a temperature difference on the basis of repeated temperature measurements and for evaluating said temperature difference to determine said freezing point, and

display means for displaying said freezing point.

4,383,771

FLUID BEARING

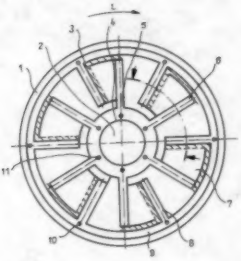
Oskar Freytag, 134, Lutherstrasse, 69 Jena, District of Gera; Rainer Bleyer, 22, Hermann-Duncker-Str., 6902 Jena-Lobeda, District of Gera; Volker Guyenot, 4, Otto-Engau-Str., 69, Jena, District of Gera; Gera Fleischer, 7, Friedrich-Naumann-Str., 3080 Magdeburg, and Jügen Michael, Ba, Emma-Heintz-Str., 69 Jena, District of Gera, all of German Democratic Rep.

Filed Oct. 20, 1981, Ser. No. 315,971

Claims priority, application German Democratic Rep., Nov. 28, 1980, 225542

Int. Cl.³ F16C *32/06*

U.S. Cl. 384—121 **3 Claims**



1. A hydrodynamic fluid bearing of rotation symmetric shape comprising

a first rotatable bearing member,

a second non-rotating bearing member,

an axle rigidly and centrally connected to said first member,

said first member being movable relative to said second member about and parallel to said axle,

said first member and said second member being provided with a bearing face each,

said first member face and said second member face being in opposition,

said first member face and said second member face being provided with a rim portion each,

at least three pockets for receiving a fluid,

each of said pockets having a first and a second limitation extending radially and in opposition to each other,

at least three inlets for said fluid in the vicinity of said axle,

at least three fluid recesses radially extending from said inlets in parallel to said first radial limitation of said pockets,

said fluid recesses changing over into said fluid pockets,

at least three fluid outlets in the vicinity of said rim portions

at least three fluid return recesses radially extending along said pockets to said fluid outlets,

said fluid return recesses being arranged at the side of said second radial limitation of said pockets in parallel to and being separated from the latter,

each of said pockets having the greatest depth along said first radially extending limitation and the least depth along said second radially extending limitation, said pockets, said inlets, said outlets, said fluid recesses, said fluid return recesses being uniformly distributed in one of said bearing member faces,

means for connecting said outlets to said inlets remote from the bearing faces.

4,383,772

SUPPORT FOR THE PAPER CARRIER IN TYPEWRITERS AND SIMILAR MACHINES

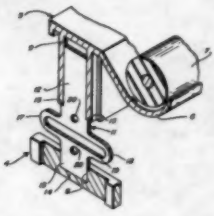
Heinz Meier; Dieter Stricker, and Detlef Kammler, all of Berlin, Fed. Rep. of Germany, assignors to Triumph-Adler A.G. fur Buro- und Informationstechnik, Nuremberg, Fed. Rep. of Germany

Filed Jun. 15, 1981, Ser. No. 273,747

Claims priority, application Fed. Rep. of Germany, Sep. 16, 1980, 3034864

Int. Cl.³ B41J *11/20*

U.S. Cl. 400—55 **2 Claims**



1. In a typewriter having a base and a paper carrier including a platen,

support structure interconnecting said base and paper carrier comprising,

vertical rectangular slots in said base and paper carrier, and

a support having downwardly and upwardly directed arms for insertion into said vertical slots in said base and paper carrier respectively, thereby to support said paper carrier above said base,

said support between said arms including laterally-extending projections, and

an elongated slot extending laterally through said support into said lateral projections to provide the capacity for deformation to allow said oppositely directed arms to be vertically or angularly adjusted relative to one another by a plier like bending tool thereby to establish a writing line and the distance between said platen and a printing element.

4,383,773

SERIAL PRINTER

Kenichiro Arai, Shiojiri, Japan, assignor to Shinshu Seiki Kabushiki Kaisha, Nagano and Kabushiki Kaisha Suwa Seikosha, Tokyo, both of, Japan

Filed Jun. 29, 1981, Ser. No. 278,142

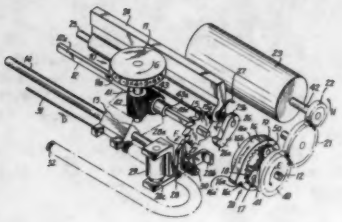
Claims priority, application Japan, Jul. 3, 1980, 55-91056

Int. Cl.³ B41J *9/06*

U.S. Cl. 400—156.3 **21 Claims**

1. A serial printer for printing characters on a printing tape comprising a frame, a printing head having a type wheel with an outer circumference, said type wheel having a first group of characters and at least a second group of characters alternately disposed on the outer circumference thereof, first selecting means for selecting one of said first and second groups of characters, said first selecting means including helical gear means for orienting said type wheel with respect to said printing tape so that one of said first and second groups of characters is selected, selecting shaft means rotatably supported on said frame and motor means for rotating said selecting shaft means, said helical gear means including a first helical gear slidably supported on said selecting shaft means for rotation

therewith, said first helical gear being laterally displaceable with respect to said printing head between a first position where said first group of characters is selected and a second position where said second group of characters is selected,



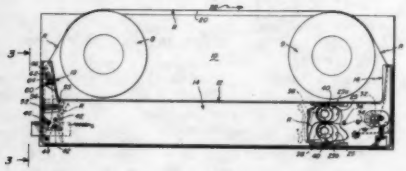
second selecting means for selecting one of said characters in said group selected by said first selecting means to be printed, and print means for printing the character selected by said second selecting means on said printing tape.

4,383,774

CARTRIDGE HAVING RIBBON INVERTING MEANS

Edward H. Yonkers, Newton, Mass., assignor to Data Packaging Corporation, Cambridge, Mass.

Filed Apr. 28, 1980, Ser. No. 144,349
Int. Cl.³ B41J *33/10*
U.S. Cl. 400—195 **25 Claims**



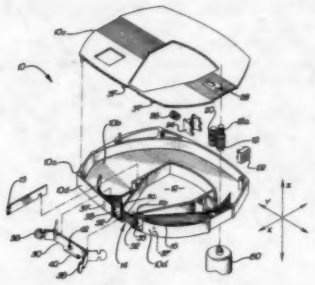
1. A ribbon cartridge for a high speed printer comprising;
an elongated body and a pair of arms extending from opposite ends of the body and to one side thereof to form a generally U-shaped ribbon container, one of the arms being an outlet arm and the other an inlet arm;
an endless ribbon packaged in the container with an exposed loop extending between the ends of the arms, the body defining a storage chamber for storing a substantial portion of the endless ribbon in serpentine configuration, the storage chamber being in communication with the interior of the arms;
the cartridge having an opening for receiving a means for driving and advancing the ribbon endlessly through the cartridge; and
ribbon inverting means disposed within the cartridge along the path of travel of the ribbon for inverting the ribbon before the ribbon exits from the outlet end of the outlet arm, said ribbon inverting means comprising a series of ridges located internally of the cartridge in spaced locations along the path of travel of the ribbon, said ridges being oriented so as to progressively guide the ribbon to an inverted configuration as the ribbon advances serially past the ridges;
said cartridge body being formed from a pair molded sections, including a base member and a cover member, said cover member including a top wall and a downwardly extending skirt which surrounds and defines the periphery of the cartridge, the lower edge of the skirt being secured to the base member;
said series of ridges which define said ribbon inverting means being formed directly in and being molded integrally with at least one of the base member and cover member;
said ridges being defined by generally V-shaped notches molded in at least one of the base member and cover member, the notches being formed exteriorly of the base member and cover member whereby the apex of the notches project interiorly of the cartridge and define said ridges.

4,383,775

RIBBON SHIELD

Kenneth L. Trammell, Campbell, Calif., and Arthur C. Van Horne, Lake Oswego, Oreg., assignors to Data Products Corporation, Woodland Hills, Calif.

Filed Feb. 9, 1981, Ser. No. 232,902
Int. Cl.³ B41J *35/28*
U.S. Cl. 400—208 **8 Claims**



1. A ribbon cassette for use with a printer having a platen or the like across which a printing medium moves, comprising:
a housing including an interior section defining a central space for accommodating a printing mechanism such as a printhead and a front opening exposing the central space to the front of the housing, said housing for containing the bulk of an endless loop of ribbon and including a slot on each side of the interior section, a portion of said ribbon passing through said slots and spanning the front opening; and
a ribbon shield made of a flexible strip of material, said ribbon shield including a central section covering the portion of the ribbon which spans the front opening to prevent contact between the ribbon and a printing medium, a pair of end sections which extend into the slots to position the ribbon shield with respect to the housing, and an aperture in the central section through which the ribbon can be pushed to contact the printing medium, wherein said shield is maintained under tension to cause the central section to bow outward from said front opening away from the central space, and wherein the central section is maintained unconnected to the housing to thereby enable it to flex said shield forcing the printing medium flat against the platen of the printer.

4,383,776

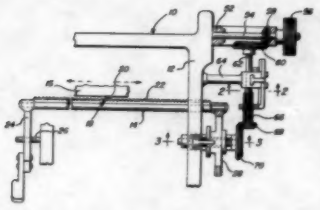
TYPEWRITER WITH CARRIAGE ESCAPE BAR ADJUSTMENT

Luis A. V. Rozas, Jiron Puno 264, Lima 1, Peru

Filed Jan. 13, 1981, Ser. No. 224,828
Int. Cl.³ B41J *19/16, 19/60*
U.S. Cl. 400—304 **2 Claims**

1. An adjustment mechanism for the carriage of a typewriter having an escapement bar and a frame with the escapement bar stationarily mounted on said frame and with the typewriter including a paper supporting carriage shiftably supported from the frame of the typewriter for incremental movement along

the escapement bar, mounting means mounting said escapement bar from said frame for infinite longitudinal shifting of said bar relative to said frame, said mounting means including first, second and third brackets stationarily mounted on said frame, a control shaft journalled from said first bracket and having a control knob supported on one end thereof, an operator shaft journalled from said third bracket for rotation about an axis paralleling the path of shifting movement of said bar relative to said frame and having a threaded portion thereon, a follower arm disposed generally normal to said operator shaft and includng a first end laterally through which said threaded portion of said operator shaft is threaded, the second end portion of said follower arm being anchored to said bar for longitudinal shifting of the bar responsive to lateral shifting of



said follower arm along said threaded portion, an intermediate shaft journalled from said second bracket and disposed transverse to said control and operator shafts, the opposite ends of said intermediate shaft and said control and operator shafts having meshed beveled gears mounted thereon whereby angular displacement of said control knob on said control shaft will in turn cause angular displacement of said intermediate shaft and said operator shaft, lateral displacement of said follower arm and longitudinal shifting of said escapement bar relative to said frame, said frame and follower arm including coacting slidably engaged guide structure guiding said follower arm from said frame for lateral shifting relative thereto and against angular displacement of said arm with said operator shaft relative to said frame.

4,383,777

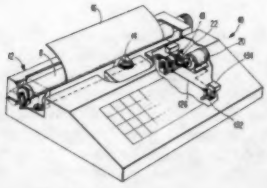
TORQUE-LIMITING CARRIAGE RETURN KNOCK-OFF MECHANISM

Douglas H. Eskew; Raymond M. Marowski, and Danny R. Sevy, all of Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 27, 1980, Ser. No. 163,841

Int. Cl.³ B41J *19/70*

U.S. Cl. 400—314.6 **7 Claims**



1. In a typewriter with a moving paper carriage, a carriage return mechanism for returning said carriage to a line beginning position, said carriage return mechanism comprising:

a carriage return cord;

a carriage return cord drum having said carriage return cord attached at one end thereof to said drum;

a first arbor, said arbor attached to said carriage return cord drum in driving relationship;

a normally disengaged clutch spring engageable with said arbor;

a second arbor, said clutch spring attached to and driven by said second arbor;

clutch control means for engaging and disengaging said clutch with and from said first arbor;

carriage return cord tension sensing means coupled to said clutch control means and responsive to predetermined cord tensions for operating said clutch control means;

a drive input means;

a deformable resilient torque transmission means interconnecting said drive input means and said second arbor for transmitting the motion of said input means to said second arbor, while allowing limited relative movement therebetween, and for absorbing loads during deformation, thereby preventing peak initial carriage return cord tensions from prematurely operating said clutch control means.

4,383,778

TYPEWRITER

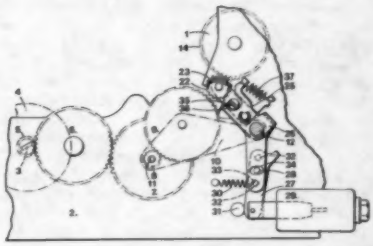
Jorge Costa, Yverdon, Switzerland, assignor to Hermes Precisa International S.A., Yverdon, Switzerland

Filed May 5, 1981, Ser. No. 260,805

Claims priority, application Switzerland, May 20, 1980, 3917/80

Int. Cl.³ B41J *19/78*

U.S. Cl. 400—569 **10 Claims**



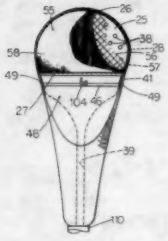
1. A typewriter comprising a carriage displaceable along a platen (1), a servo-motor (4) coupled to a motor shaft (3) for driving a device for selecting a character to be printed from the characters carried by a printing head disposed on the carriage, said motor shaft (3) being rotatable so as to occupy at least one angular rest position corresponding to the rest position of the printing head, a first gear train (5 to 9) including first and last controlled pinions driven by the motor shaft and a second gear train including first and second pinions (14,15) for driving the platen (1), said platen (1) co-operating with an angular ratchet device (13,40) retaining it in several angular positions, characterized in that the second pinion (15) of the second gear train (14,15) is secured to a transmission pinion (22) carried by a control member (25,26) adapted, during a platen driving order, to bring the transmission pinion (22) into engagement with said last controlled pinion (9) of the first gear train (5 to 9) when the platen (1) and the motor shaft (3) are immobile, said last controlled pinion mounted on a pivotal axis, the number of teeth of the pinions of the first gear train (5 to 9), and of the second gear train (14,15) provided in such a manner that, when the motor shaft (3) rotates from any one of said rest positions to another of said rest positions or to the same rest position and when the platen (1) rotates from any one of said angular positions to another of said angular positions, said last controlled pinion (9) and said transmission pinion (22) rotate through an angular displacement equal to an integer number of teeth, the cogging of the pinions being such that the teeth of the transmission pinion (22) always fit between the teeth of the last controlled pinion (9) during a platen driving order.

4,383,779

CLEANSING DEVICE WITH DOOR FOR DRIP CATCHING

Sarkis Khanzadian, 642, E. Weldon, Fresno, Calif. 93704, and Ketty C. Chamlian, 7452 N. Van Ness, Fresno, Calif. 93711

Filed May 18, 1981, Ser. No. 264,666
Int. Cl.³ B05C *17/00*; A46B *11/00*
U.S. Cl. 401—15 **6 Claims**



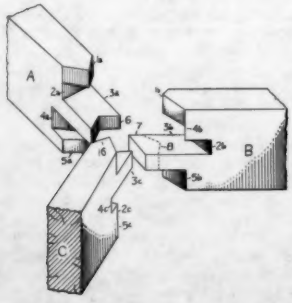
1. A cleansing device for use in a substantially erect attitude, the device comprising a housing having a grasping portion and a cleansing portion, a first passage extending through the housing interconnecting the grasping and cleansing portions and a second passage extending from a position adjacent to the cleansing portion of the housing through the grasping portion to communicate with the exterior thereof; a conduit mounted on the grasping portion of the housing having a distal end portion adapted to be connected to a source of liquid for transfer of liquid from the source through the conduit and into the first passage of the housing; a liquid applying element borne by the cleansing portion of the housing in communication with the first passage; a door mounted on the housing adjacent to the liquid applying element and in communication with said second passage, the door being movable between a closed attitude and an opened attitude in receiving relation to residual liquid from the liquid applying element; and a valve assembly mounted in the housing and connected to the door selectively operable to open said first passage and move the door to said opened attitude to permit liquid to flow from the source of liquid through the first passage into the liquid applying element and said residual liquid therefrom to flow into the second passage through the door for discharge from the housing.

4,383,780

THREE-WAY FINGER JOINT

John E. Davison, 2366 Cedar St., Apt. 2, Berkeley, Calif. 94708

Filed Oct. 21, 1981, Ser. No. 313,782
Int. Cl.³ F16B *12/00*
U.S. Cl. 403—219 **4 Claims**



1. A joint for joining three structural members of identical cross-section having longitudinal axes lying in a single plane and meeting at a single point, comprising:

three structural members of identical cross-section to be joined, each having an arrangement of finger elements formed at one end, such that the finger elements interlock to form the joint, joining the members rigidly without gaps;

the finger elements forming top, bottom, and at least three middle layers;

the top and bottom layers comprising finger elements of a first type which are identical on all three members;

each middle layer comprising one finger element on one member and two slots on the two adjoining members;

the finger element of each middle layer being of a second type, of sufficient length to protrude from the surface of the joint;

the slots of each middle layer being adapted to mate with the finger element of the adjoining structural member without gaps;

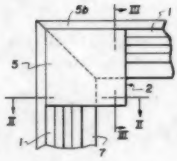
the finger elements and slots of the middle layers being arranged such that each structural member has at least one finger element of the second type mating with corresponding slots on each adjoining member.

4,383,781

PROCEDURE FOR MAKING ANGLE JOINTS AND ANGLE JOINTING UNIT FOR PICTURE FRAMES

Kaarina Alander, Granangsringen 16 A, S-13544 Tyreso, Sweden

Filed Jan. 4, 1980, Ser. No. 261,235
Int. Cl.³ B25G *3/36*; E04G *7/00*
U.S. Cl. 403—402 **6 Claims**

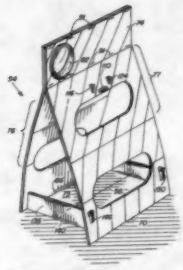


1. A frame joint construction comprising, at least one pair of moldings, each having at least one longitudinally extending groove and longitudinally extending tongue and each including a 45 degree mitre at the ends thereof which are abutting against each other, an angle unit having a stiffening plate lying in a plane generally parallel to the top rim of said moldings with at least one tongue engaged into said at least one longitudinally extending groove of said pair of moldings respectively fastening said pair of moldings together, each of said grooves and tongues extending perpendicularly to said plane of said moldings, said stiffening plate comprising two separate plates each having said at least one tongue engaged into said at least one longitudinally extending groove of said pair of moldings, respectively, said separate plates connected to each other by a cross member and having a shape of letter A with its upper tip missing so that said separate plates are spaced from said 45° mitres.

4,383,782
TRAFFIC BARRICADE

Harold E. Pillifant, Jr., 3522 W. Dunlap, #214, Phoenix, Ariz. 85021, assignor to Harold E. Pillifant, Jr., Pheonix, Ariz.

Continuation-in-part of Ser. No. 80,470, Oct. 1, 1979, Pat. No. 4,253,777. This application Jun. 23, 1980, Ser. No. 162,123
The portion of the term of this patent subsequent to Mar. 3, 1998, has been disclaimed.
Int. Cl.³ E01F 13/00
U.S. Cl. 404—6 24 Claims



1. A traffic barricade comprising:

a. a first flat sheet portion of foldable material having a first scoreline for folding in a first direction and a second scoreline for folding in a second direction, said first scoreline forming a border of a vertical area, said second scoreline forming a border of a horizontal area when said barricade is erected, said first flat sheet portion having a sloping surface between said first and second scorelines when said barricade is erected, the vertical area having a hole therein;

b. a first lens attached to a front side of the vertical area of said first flat sheet portion, said first lens being centrally disposed over the hole within the vertical area;

c. a second flat sheet portion of foldable material having a first scoreline for folding in a first direction and a second scoreline for folding in a second direction, said first scoreline forming a border of a vertical area, said second scoreline forming a border of a horizontal area when said barricade is erected, said second flat sheet portion having a sloping surface between said first and second scorelines when said barricade is erected, the vertical area having a hole therein;

d. a second lens attached to a front side of the vertical area of said second flat sheet portion, said second lens being centrally disposed over the hole within the vertical area;

e. means permanently securing the vertical areas of said first and second flat sheet portions in back-to-back contact with each other with the front sides thereof facing in opposite directions, the holes within the vertical areas of said first and second flat sheet portions being in alignment with each other;

f. means for maintaining said second scorelines of said first and second flat sheet portions in predetermined spaced apart relation when said barricade is erected; and

g. lighting means disposed between said first and second lenses for simultaneously directing light through each of said first and second lenses.

4,383,783
PIPELINE GEL PLUG

Vitold R. Kruka, Houston, and Joe O. Esparza, Katy, both of Tex., assignors to Shell Oil Company, Houston, Tex.

Continuation of Ser. No. 943,012, Sep. 18, 1978, abandoned. This application Jul. 17, 1981, Ser. No. 285,219
Int. Cl.³ F16L 1/04
U.S. Cl. 405—171 6 Claims

1. A method for liquid fill weighting a completed segment of an offshore pipeline to within a predetermined distance from a vessel from which the pipeline is being laid comprising inserting a movable gel plug into the pipeline to separate an air-filled segment of the pipeline adjacent to the vessel from a liquid-filled segment of the pipeline, the gel plug comprising from about 5 to about 30 weight percent of a vegetable oil selected from the group consisting of soya oil, tall oil, sunflower oil, coconut oil, cottonseed oil and corn oil, from about 1 to about 10 weight percent of a fatty acid and from about 50 to about 80 weight percent of a particulate filler, and moving the gel plug as additional pipeline is laid to maintain the predetermined distance of the gel plug from the vessel.

4,383,784
METHOD AND MEANS OF MANUFACTURING A ROTARY CUTTING TOOL

Richard C. Gulbrandsen, Naperville, Ill., assignor to Precision Twist Drill & Machine Co., Crystal Lake, Ill.

Continuation-in-part of Ser. No. 110,210, Jan. 7, 1980, abandoned. This application Oct. 16, 1981, Ser. No. 312,263
Int. Cl.³ B23B 27/18, 51/02
U.S. Cl. 408—144 9 Claims

1. The method of making a rotary cutting tool comprising taking a length of low grade, cylindrical tool steel having properties to achieve a Rockwell hardness level of 63.5 to 65.5 on the C scale and butt welding a short length of cylindrical high grade tool steel, together in end-to-end relationship, then annealing the joined pieces to soften the weld, then removing any distortion caused by the welding, and then forming the cutting tool and hardening the same all over, including the weld zone, to achieve a homogeneous mass having a Rockwell hardness of 63.5 to 65.5 on the C scale, thereby forming a secondary and primary wearing surface, and then machining the pieces to form a usable tool.

4,383,785
METHOD FOR MILLING AND DRILLING GLASS

Stephen H. Rice, Waldorf, Md., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

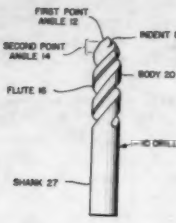
Filed Jul. 30, 1980, Ser. No. 173,520
Int. Cl.³ B23B 35/00; B23C 3/00
U.S. Cl. 409—131 7 Claims

1. A process for machining glass, comprising the steps of:

placing a carbide working surface of a solid tool against an area of a glass workpiece;

wetting the working surface with a lubricant consisting essentially of a middle molecular weight petroleum distil-

late carrier, a complex mixture of esters, and a complex mixture of naturally occurring aromatic oils; and



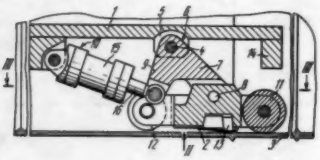
driving said wetted working surface with continuous motion and minimal pressure against said glass workpiece area.

4,383,786

APPARATUS FOR REMOVING FLASH FROM PIPES

Boris E. Paton, ulitsa Chkalova, 41-a, kv. 26; Vladimir K. Lebedev, ulitsa Engelsa, 25, kv. 12; Sergei I. Kuchuk-Yatsenko, ulitsa Filatova, 1/22, kv. 47; Vasily A. Sakharnov, ulitsa Solomenskaya, 41, kv. 93; Boris A. Galian, ulitsa Lenina, 88/92, kv. 110; Grigory B. Asoiants, bulvar Lesi Ukrainki, 2, kv. 16; Mikhail F. Vorobei, ulitsa Stroitelei, 9, kv. 1, and Sergei A. Solodovnikov, ulitsa Solomenskaya, 41, kv. 50, all of Kiev, U.S.S.R.

Filed Oct. 21, 1980, Ser. No. 199,274
Int. Cl.³ B23D *1/08*
U.S. Cl. 409—299 **8 Claims**



1. An apparatus for removing flash from the inside surface of welded pipes, comprising:

a body;

a plurality of V-shaped two-arm levers mounted on said body;

a plurality of cutting tool holders disposed around the periphery of said body and pivoted each to one arm of one of said levers;

drives for turning said levers mounted on said body and each connected with the other arm of respective ones of said levers;

rollers mounted on the front and the rear ends of said cutting tool holders and being movable into and out of contact with the inner surface of the pipe; and

cutting tools rigidly attached to said cutting tool holders.

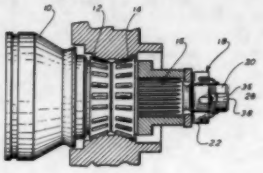
4,383,787

FREE SPINNING LAMINATED NUT WITH AUTOMATIC LOCK

Richard L. Reynolds, 6 Stratford La., Ho Ho Kus, N.J. 07423

Filed Sep. 16, 1980, Ser. No. 187,833
Int. Cl.³ F16B *39/22*
U.S. Cl. 411—221 **9 Claims**

1. A laminated nut provided with an automatic locking means comprising, a plurality of stacked conical spring washers which are tapped to match the threads of the bolt on which said nut is to be threaded, a cage for holding said spring washers in stacked, aligned, relation so that act in effect as if they were a single threaded unit, and a locking washer within said cage having at least one upstanding lug for engaging with at least one slot in the side of said bolt and having a ratcheting



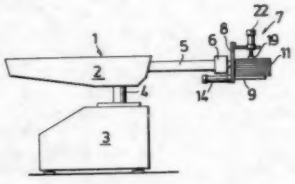
connection with said cage so that the cage can rotate relative to the locking washer in one direction of rotation but is locked against such rotation in the other direction of rotation.

4,383,788

ARRANGEMENT FOR A MACHINE PARTICULARLY INTENDED FOR HANDLING LOOSE SIGNATURE PACKS

Thomas Sylvander, Mansarp, Sweden, assignor to Wamac-Idab AB, Sweden

Filed Jan. 30, 1981, Ser. No. 230,365
Claims priority, application Sweden, Jan. 28, 1980, 8000667
Int. Cl.³ B65G *57/06*
U.S. Cl. 414—71 **18 Claims**



1. A machine for loading loose signature packs as onto a pallet in a predetermined pattern, said machine comprising:

horizontally extending arm means for carrying unbanded signature packs from a predetermined pick-up point to a deposit point laterally displaced from said pick-up point, for deposit on a pallet, said arm means having a free end;

gripping means rotatably disposed at said free end of said arm means for rotation about an axis extending lengthwise of said arm means; said gripping means comprising carrying means for carrying a pack of signatures, said carrying means being movable relative to said arm means between a retracted position in which said carrying means is unable to carry a load and an extended position in which said carrying means is available to carry a load of signatures; said carrying means being sufficiently quickly and suddenly movable from said extended to said retracted position to enable said carrying means to be suddenly withdrawn from under a load supported by it, without imparting to such load motion in the direction parallel to the retraction of said carrying means, and

pressure means for exerting pressure on a load of signatures carried by said carrying means for pressing such signatures against said carrying means, and for pushing such signatures strongly downward onto a pallet when said arm means has brought such load of signatures to said deposit position and after said carrier means has been suddenly retracted to release such pack.

4,383,789

ARTICLE AUTOMATIC STORAGE AND RETRIEVAL APPARATUS

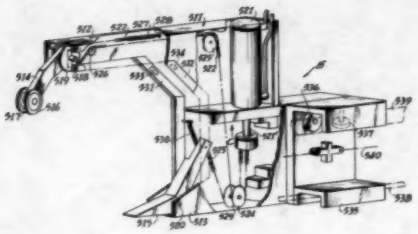
Shunichi Takamatsu, Osaka, Japan, assignor to Itoki Kosakusho Co. Ltd., Osaka, Japan

Continuation of Ser. No. 889,522, Mar. 23, 1978, abandoned. This application Apr. 9, 1981, Ser. No. 267,511

Claims priority, application Japan, Mar. 26, 1977, 52/32794; Jun. 9, 1977, 52/67342; Jun. 9, 1977, 52/67343

Int. Cl.³ B65G 65/00

U.S. Cl. 414—277 5 Claims



1. A commodity retrieval and storage apparatus comprising, shelf means for holding a plurality of said commodity, said commodity having a generally circular outer periphery and said shelf means having a concave depression therein with a lower support surface and an upstanding backwall to support said commodity, carriage means, displaceable along said shelf means, and including means for retrieving selected ones of said commodity from said shelf means, said retrieving means including, a forwardly extending upper arm, and a forwardly extending lower arm, said upper and lower arms being arranged to pivot from a first rest position to a second commodity engagement position, a movable member, a first flexible member extending from said upper arm to said movable member, a second flexible member extending from said lower arm to said movable member, said lower arm including an inclined plane portion at a forward end of said lower arm, means for moving said inclined plane portion of said lower arm under said commodity, whereby said commodity is moved in an upward direction along said upstanding backwall, means operative when said inclined plane portion has been moved under said commodity for displacing said movable member and said first and second flexible members, and for pivoting said upper arm and said lower arm from said first rest position to said second commodity engagement position, a first support member, wherein said upper arm is pivotally attached to said first support member, said commodity retrieval and storage apparatus further including a first sprocket wheel fixedly joined to said upper arm at said point of pivotal attachment, said first flexible member being attached to said first sprocket wheel and a plurality of additional sprocket wheels for carrying said first flexible member from said first sprocket wheel to said movable member, a second support member, wherein said lower arm is pivotally attached to said second support member, said second flexible member being attached to said lower arm and being carried to said movable member by one of said plurality of additional sprocket wheels.

4,383,790

REFUSE COMPACTION APPARATUS

Fred T. Smith, Palos Verdes Peninsula, Calif., assignor to Sargent Industries, Inc., Los Angeles, Calif.

Division of Ser. No. 876,644, Feb. 10, 1978, abandoned. This application Feb. 23, 1981, Ser. No. 237,461

Int. Cl.³ B65F 3/20

U.S. Cl. 414—293 31 Claims

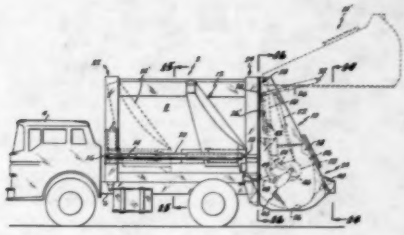
3. In a refuse compaction apparatus,

a hopper having a pair of spaced side walls,

a panel extending the lateral distance between the spaced side walls and supported by the spaced side walls and rotatably positioned for cyclic movement through the hopper,

said panel having a body extending the lateral distance between the spaced side walls with a generally elliptical cross-sectional configuration and with a high torque-transmitting capability,

drive means mounted on the hopper at only a particular one of the spaced side walls of the hopper and connected to said panel at only the particular side wall to impart a rotational force to the panel at said particular side wall with the rotational force being transmitted throughout the panel by the elliptical body,



a shaft mounted on the other one of the side walls of the hopper and supporting the end of the panel adjacent such other side wall,

means connected to the panel at the particular side wall for rigidifying the side of the panel adjacent the particular side wall, and

means connected to the panel adjacent the other one of the spaced side walls for stiffening that side of the panel.

4,383,791

LIFT MECHANISM FOR PICKUP TRUCKS

Louis J. King, Arvada, Colo., assignor to Denver Spring Service & Mfg. Co., Inc., Denver, Colo.

Filed Dec. 5, 1980, Ser. No. 213,610

Int. Cl.³ B60P 1/48

U.S. Cl. 414—542 1 Claim

1. A lift mechanism for a cargo carrying vehicle having a flat bed, a pair of parallel side walls extending upwardly along opposite sides of said flat bed, and a front end wall interconnecting the side walls at the forward end of said flat bed, said side walls and end wall having upper edges defining an open top for the bed portion of the vehicle, said lift mechanism comprising:

an inverted U-shaped boom having a pair of substantially parallel side legs and a connecting leg, said connecting leg connecting the side legs at one end thereof,

a pair of support means anchored to said vehicle, said pair of support means being disposed one on each side of said flat bed between said side walls, each of said support means including first connection means for pivotably supporting the other end of one of said side legs, said first connection

means being at a lower level than the upper edges of said side walls of the vehicle,

a pair of longitudinally extensible push-pull means,

second connection means on each support means pivotably connecting one end of one of said push-pull means to an associated one of said support means, said second connection means being positioned forwardly of said first connection means and at a lower elevation than said first connection means,

a pair of third connection means, one of said pair on each of said side legs pivotally connecting the other end of said push-pull means to an associated side leg,

power means on said vehicle operatively connected to each of said push-pull means to selectively extend and retract the push-pull means, thereby moving the boom through an arc about an axis interconnecting said pair of first connecting means, said arc being such that the boom can be moved from a forwardly extending generally horizontal position to a rearwardly inclined position overhanging the rearwardmost extent of said bed, said lift mechanism when the boom is in the forwardly extending generally horizontal position being completely beneath the upper edges of the side and end walls, and

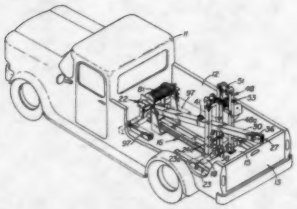
a winch on said connecting leg including means for attachment to an article to be lifted into and out of said vehicle bed.

4,383,792

CRANE FOR DETACHABLE MOUNTING ON A TRUCK BED

Clark G. Seabloom, P.O. Box 30, Paonia, Colo. 81428 and Lawrence C. Post, Aurora, Colo., assignors to Clark G. Seabloom, Paonia, Colo.

Filed Sep. 2, 1980, Ser. No. 183,314
Int. Cl.³ B60P *3/12*
U.S. Cl. 414—563 **11 Claims**



1. In a hoist of the type which is adapted for detachable mounting on the bed of a pickup truck or similar vehicle and which includes an elongated flat base for engagement with and attachment to the truck bed, a boom having its base end pivotally attached to a member mounted for limited movement fore and aft along the longitudinal axis of the flat base, said boom being adapted for swinging movement in a vertical plane with its axis normal to the longitudinal axis of the base, means for securing said member to the base in its aft position, the combination with:

means for erecting the boom,

means including an upwardly extending guide structure secured to said base and including guide posts one on either side of the boom for restraining the boom against lateral movement and for guiding the boom during erection and during lowering, and

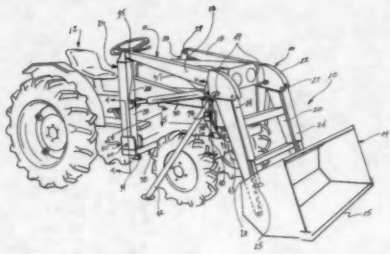
a detachable stop secured to said posts for providing a rest for engagement with the underside of the boom to support the boom in its lowered position for transportation.

4,383,793

TRACTOR IMPLEMENT MOUNT

Norman F. Weir, Calument, Wis., assignor to Chromalloy American Corporation, St. Louis, Mo.

Filed Feb. 26, 1981, Ser. No. 238,425
Int. Cl.³ E02F *3/72*
U.S. Cl. 414—686 **17 Claims**



1. A mounting assembly for attaching to the frame assembly of a prime mover a working implement having attachment members thereon comprising first and second pairs of attachment structures on the frame assembly of said prime mover, each of said pairs of attachment structures including means associated therewith for receiving and engaging corresponding attachment members on said working implement, alignment means associated with said first pair of attachment structures for aligning said second pair of attachment structures with their corresponding attachment members on said working implement when the first pair of attachment structures are secured to their corresponding attachment members on said working implement, and locking means for detachably securing the attachment members on said working implement to said first and second pairs of attachment structures;

wherein said first pair of attachment structures on the frame assembly of said prime mover includes a pair of first support members attached respectively to opposite sides of said prime mover and extending outwardly therefrom, said means associated with said first pair of attachment structures for receiving and engaging the corresponding attachment members on said working implement including pocket means formed on the outer extremity of each of said support members, said pocket means including first and second opposed side wall members having openings extending respectively therethrough for alignment with corresponding openings extending through corresponding attachment members on said working implement and wherein said second pair of attachment structures on the frame assembly of said prime mover includes a pair of second support members attached respectively to opposite sides of said prime mover and extending upwardly therefrom, each of said second support members positioned in spaced apart relationship relative to said first support members, said means associated with said second pair of attachment structures for receiving and engaging the corresponding attachment members on said working implement including bracket means on said second support members, said bracket means including first and second opposed side wall members having openings extending respectively therethrough for alignment with corresponding openings extending through corresponding attachment members of said working implement; and

wherein said alignment means associated with said first pair of attachment structures includes a first pin member slidably insertable within said openings extending through said pocket means and the corresponding attachment members on said working implement such that when said first pin member is inserted therethrough the openings extending through the bracket means on said second sup-

port members are drawn into alignment with the openings extending through their corresponding attachment members on said working implement to permit attachment thereto, said first pin member including first and second portions having different diameters and a tapered transition region extending therebetween, said first pin portion being of constant diameter and substantially equal to the diameter of the openings extending through the first side wall member of said pocket means, said second pin portion being of constant diameter and substantially equal to the diameter of the opening extending through the second side wall member of said pocket means.

4,383,794

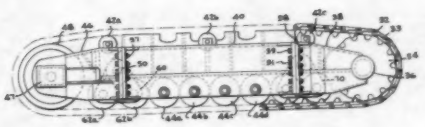
FRAME STRUCTURE FOR TRACK-TYPE VEHICLE

Edwin W. Sankey, Marion, Ohio, assignor to Dresser Industries, Inc., Dallas, Tex.

Continuation of Ser. No. 204,283, Nov. 5, 1980, abandoned, which is a continuation of Ser. No. 948,648, Oct. 3, 1978, abandoned. This application Oct. 15, 1981, Ser. No. 311,625

Int. Cl.³ E02F 3/75; B62D 11/04, 55/10

U.S. Cl. 414—694 4 Claims



1. In a track-type vehicle operating on endless crawler tracks, each said crawler track extending around and being driven by a crawler sprocket at one extremity of its travel and extending around an idler roller at its other extremity of travel, and having drive means for said crawler sprocket and at least a pair of crawler side frame assemblies, each crawler side frame assembly comprising:

a central side frame member extending laterally from and being integral with a supporting frame for the vehicle and carrying the said crawler track through the intermediate portions of its travel, said side frame member having at least one upwardly extending track support roller carrying said crawler track in a first direction of travel and downwardly extending track rollers guiding said track in a second direction of travel and supporting said vehicle on the surface on which it is traveling,

a first modular member rotatably carrying at least said idler roller, said first modular member being detachably secured to a first end of said side frame member,

a second modular member carrying at least said crawler sprocket, said second modular member being detachably secured to a second end of said side frame member and

first and second additional track roller means, respectively, mounted on said first and second ends of said crawler side frame assembly so as to extend across the point where said modular members are secured to said ends of said side frame member to support said crawler track in portions of its travel, respectively, between said idler roller and the next adjacent track roller on said central side frame member and between said crawler sprocket and the next adjacent track roller on said central side frame member.

4,383,795

BAG TRANSFER APPARATUS

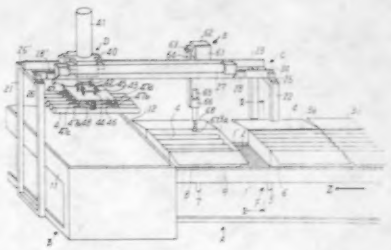
Atsuyuki Wakamatsu, Shimizu, and Keisuke Tonooka, Shizuoka, both of Japan, assignors to Daiwa Can Company, Limited, Tokyo, Japan

Filed Dec. 17, 1980, Ser. No. 217,258

Claims priority, application Japan, Apr. 7, 1980, 55/46679[U]

Int. Cl.³ B65G 61/00

U.S. Cl. 414—753 3 Claims



1. Apparatus for simultaneously pinching a plurality of horizontally elongated bags disposed side by side, parallel to one another and in close lateral proximity to one another at a pickup location and transferring such bags to a discharge location, said apparatus comprising:

(a) gripper means for pinching each bag at two longitudinally spaced locations adjacent the topmost portion of such bag thereby to impart sensing means retaining capability to such bag;

(b) means for moving said gripper means from said pickup location to said discharge location while said bags are pinched thereby; and

(c) sensing means for detecting the state of such pinched engagement of said bags with said gripper means, producing a positive signal only if every one of said bags is pinched by said gripper means at both of the aforesaid two locations thereon such that said bags all have imparted thereto,

said sensing means retaining capability and stopping operation of said moving means if said positive signal is absent.

4,383,796

REFUSE COMPACTION METHOD

Fred T. Smith, Palos Verdes Peninsula, Calif., assignor to Sargent Industries, Inc., Los Angeles, Calif.

Division of Ser. No. 876,644, Feb. 10, 1978, abandoned. This application Feb. 23, 1981, Ser. No. 237,363

Int. Cl.³ B65F 3/20

U.S. Cl. 414—786 14 Claims

1. A method of compacting refuse comprising:

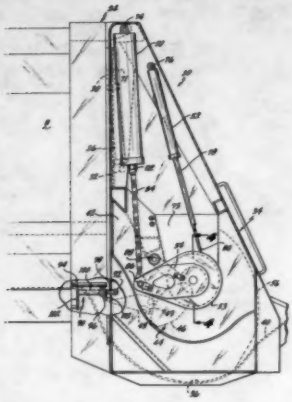
transferring refuse into a hopper at a relatively low pressure,

providing a container for storing refuse,

providing a passage into said container from the hopper with a progressively narrowed throat within the passage,

forcing refuse into the container from the hopper through the progressively narrowed throat to subject the refuse to high localized pressures, during the movement of the refuse through the progressively narrowed throat, substantially exceeding the pressure exerted by the refuse in the hopper and the container,

maintaining the high localized pressures on the refuse in the progressively narrowed throat within particular limits,



relieving the pressure of the refuse in the passage before the transfer of the refuse into the container, and

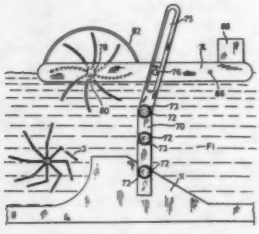
maintaining the refuse at a low pressure in the container.

4,383,797

UNDERWATER TURBINE DEVICE WITH HINGED COLLAPSIBLE BLADES

Edmund M. Lee, 142 Garrard Rd., Whitby, Ontario, Canada (L1N 3K6)

Filed Jul. 14, 1980, Ser. No. 168,473
Claims priority, application Canada, Jul. 16, 1979, 331850
Int. Cl.³ F03B *13/12*
U.S. Cl. 415—7 **8 Claims**



1. A submersible turbine device and a supplementary turbine device comprising:

a turbine bed;

a turbine wheel mounted in close relation to said turbine bed, said turbine wheel comprising a central axle and a plurality of turbine blades, said turbine blades each comprising a plurality of sections which extend outwardly from said axle;

hinge means connecting said turbine blade sections which limit the angle that one turbine blade section can be rotated relative to the other turbine blade section to between substantially 180° and 90° through a rotational arc of substantially 90° or less, said hinge means being activated by water pressure, said turbine blades being fully extended when exposed to and traveling in the same direction as the water current flow, said turbine blades being folded when moving in a direction opposite to the water current flow;

said turbine bed being contoured to snugly accommodate and permit rotation of said turbine wheel and being provided with a forward shield position to allow current flow on said turbine blades when said turbine blades are in an upwardly extending position and to prevent current flow on said turbine blades when said turbine blades are in a downward position;

said supplementary turbine device comprising:

an anchored upwardly extending support means;

a buoyant platform mounted to said support means for floating at water level, said support means being adapted to permit automatic vertical travel of said buoyant platform with changes in the water level; and

a water wheel rotatably mounted in said buoyant platform located substantially above said turbine wheel;

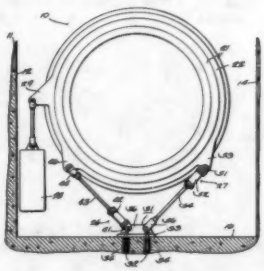
said buoyant platform and said support means cooperating with one another to coordinate horizontal shifting of said water wheel to the vertical movement of said buoyant platform, said water wheel shifting away from and being maintained out of contact with said submersible turbine device during changes in the water level.

4,383,798

SINGULAR MOUNTED SERVOMOTOR SYSTEM FOR BULB TURBINES

Thomas R. Schucker, York, Pa., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Nov. 3, 1980, Ser. No. 202,879
Int. Cl.³ F01D *17/10, 17/12*
U.S. Cl. 415—150 **2 Claims**



1. In a bulb turbine machine having a gate operating ring with a generally horizontal axis and rotatable about said axis; said ring disposed within a turbine gallery having a floor beneath said ring; a counterweight mass connected to a first side of said ring and suspended downwardly therefrom; said counterweight operable to urge said ring to rotate about said axis from a gate open position to a gate closed position;

a single stationary mounting bracket secured to said floor directly beneath said ring and said axis;

a first servomotor comprising a fluid pressure cylinder having a head end and a reciprocal piston rod extending from said cylinder opposite said head end to a free end with said head end of said first servomotor pivotally secured to said ring on a second side of said ring opposite said first side and said free end of said first servomotor pivotally secured to said bracket;

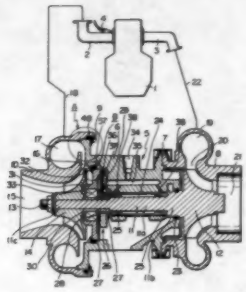
a second servomotor comprising a fluid pressure cylinder having a head end and a reciprocal piston rod extending from said cylinder opposite said head end to a free end with said head end of said second servomotor pivotally secured to said bracket and said free end of said second servomotor pivotally secured to said ring on said first side;

said first and second servomotors operable to cooperate to rotate said ring about said axis between said gate open and closed positions with said counterweight depending from said first side of said ring with said servomotors operable to rotate said ring to said gate open position by pressurization of said head ends of both of said servomotors.

4,383,799
RING AND GROOVE CONTRACTION FOR ASSEMBLING A TURBOCHARGER

Hiroshi Okano, Mishima, and Yoshihisa Gunji, Susono, both of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Jul. 2, 1980, Ser. No. 165,932
Claims priority, application Japan, Apr. 7, 1980, 55-44703
Int. Cl.³ F04D 29/40
U.S. Cl. 415—219 C 6 Claims



3. A ring and groove construction adapted for use in a turbocharger of an internal combustion engine in which a first member is removably secured to a second member by said ring and groove construction, said first member having an axially extending cylindrical inner wall, said second member having an outer cylindrical wall over which said cylindrical inner wall of said first member slidably engages, said first member having a first abutment integrally formed thereon, said second member having first and second faces axially spaced on opposite sides of said outer cylindrical wall, said first face abutting said first abutment so as to restrict axial movement of said first member, said ring and groove construction comprising:

a ring groove located in said first member comprising first and second sidewalls and an axially extending inner surface extending therebetween which is spaced radially outwardly from said outer cylindrical wall of said second housing when said outer cylindrical wall is positioned within said cylindrical inner wall, said second sidewall being tapered and extending half-way into the radially outermost depths of said ring groove;

an O ring positioned within said ring groove and in contacting engagement with both said first and second members to provide a sealing effect;

a retaining ring adapted to slidably fit within said ring groove, said retaining ring having first and second sides, said second side including a tapered outer portion which slidably engages said tapered second sidewall for locking engagement,

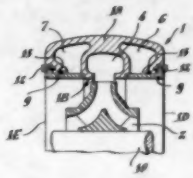
a spacer having first and second planar surfaces, said first planar surface abutting said second face of said second member, said second planar surface being in abutment with said first side of said retaining ring, said spacer having an outer circumferential portion projecting into the ring groove so that the edge of said outer circumferential portion terminates at the same depth within the ring groove as the tapered second sidewall, said spacer engaging at its inner end with a ring shaped projection formed in one piece on the second face of said second member;

whereby said O ring, said spacer, and said retaining ring are positioned within said ring groove to provide a simplified construction in which said O ring operates to provide a seal between said first and second members and said retaining ring operates to prevent axial movement of said first and second members relative to each other.

4,383,800
CENTRIFUGAL PUMP WITH OPEN DOUBLE VOLUTE CASING

Karl-Heinz Becker, Worms; Peter Milla, Beindersheim; Peter Hergt, Ludwigshafen, and Heinz-Dieter Hellmann, Grünstadt, all of Fed. Rep. of Germany, assignors to Klein-Schanzlin & Becker Aktiengesellschaft, Frankenthal, Fed. Rep. of Germany

Filed Jan. 21, 1981, Ser. No. 226,751
Claims priority, application Fed. Rep. of Germany, Feb. 12, 1980, 3005094
Int. Cl.³ F01D 11/00, 25/24; F04D 1/00
U.S. Cl. 415—219 C 12 Claims

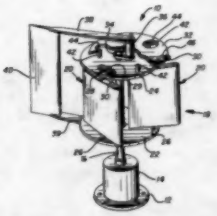


1. In a centrifugal pump, the improvement comprising a casing including a housing having first and second volutes each of which extends along an arc of maximally 180 degrees, said volutes having starts and ends and the start of said second volute being adjacent to the end of said first volute, the outer diameter of said housing at least approximating the outer diameter of said first volute in the region of the end of said first volute, and said housing further having an outlet nozzle communicating with the end of said second volute and at least one channel extending from the end of said first volute, along said second volute and to said outlet nozzle, said housing also having a central passage and said channel having an open inner side facing said passage, said casing also comprising an arcuate insert installed in said housing and sealing the open side of said channel from said passage.

4,383,801
WIND TURBINE WITH ADJUSTABLE AIR FOILS

Dale H. Pryor, P.O. Box 4578, Odessa, Tex. 79760.

Filed Mar. 2, 1981, Ser. No. 239,218
Int. Cl.³ F03D 7/06
U.S. Cl. 416—17 9 Claims



1. A wind turbine having a drive shaft disposed along a vertical axis; a lower and an upper drive flange vertically spaced from one another; rotatably means mounting said drive flanges respective to said shaft; a plurality of air foils; means by which the opposed ends of said air foils are journaled to said drive flanges to enable the air foils to be moved from a high lift to a low drag configuration respective to any wind which may blow thereacross;

a pitch flange eccentrically mounted respective to the drive flanges, a trailing boom, a vane supported by said trailing boom, said boom is supported by said shaft, means connecting said drive flanges, said pitch flange, and said vane

to cause said pitch flange to rotate eccentrically with respect to said drive flanges and describe a circle thereabout;

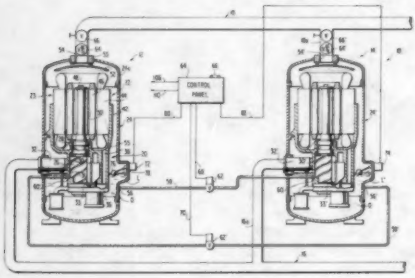
linkage means interconnecting said air foils to said pitch flange in a manner to continually change the pitch of the air foil respective to the vane as the drive flanges are rotated 360° about the drive shaft to cause the air foils to always be oriented in a maximum lift, minimum drag configuration.

4,383,802

OIL EQUALIZATION SYSTEM FOR PARALLEL CONNECTED COMPRESSORS

Sebastian J. Gianni, Wethersfield, and Donald D. Schaefer, Farmington, both of Conn., assignors to Dunham-Bush, Inc., West Hartford, Conn.

Filed Jul. 6. 1981, Ser. No. 280,041
Int. Cl.³ F25B *31/02, 1/04;* F04B *49/04, 39/02*
U.S. Cl. 417—12 **6 Claims**



1. A compressed gas distribution system comprising:

a plurality of compressor units,

said compressor units including a hermetic outer casing defining a sump for the accumulation of oil, means forming a closed volume for gas compression, and a compressor inlet and outlet,

said gas distribution system further comprising a suction manifold and discharge manifold,

means for connecting said suction manifold to the compressor inlets of respective compressor units,

the compressor outlets opening to the interior of the respective compressor unit casings such that the lower portion of each casing defines a sump for the accumulation of oil within the casing interior, at compressor discharge pressure,

each outer casing being provided with a unit gas outlet port well above the level of accumulated oil and opening to said discharge manifold such that said compressor units are connected in parallel,

the improvement comprising an oil equalization port within each outer casing below the normal level of accumulated oil,

small diameter oil equalization lines connected at one end to an oil equalization port of one compressor unit and at the other end to an oil injection port opening to the closed volume of another compressor unit at a point cut off from suction and discharge sides of the compressor, and vice versa

a control valve within each oil equalization line, and

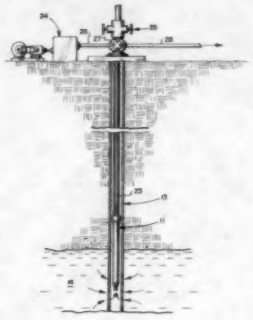
means for sensing a drop in oil level below a minimum in each compressor unit and being connected to at least one of said control valves such that said sensing means for one unit acts to open the control valve in the equalization line leading from said other compressor unit to effect redistribution of the oil to said one unit and increase the amount of oil within that compressor unit, due to the pressure differential between said one unit sump and the other unit injection port and vice versa.

4,383,803

LIFTING LIQUID FROM BOREHOLES

Timothy E. Reese, 309 King Richard, Irving, Tex. 75061

Filed Oct. 14, 1980, Ser. No. 196,615
Int. Cl.³ F04B *3/00*
U.S. Cl. 417—259 **1 Claim**



1. A device for lifting liquid from a borehole comprising a fluid-actuated pump adapted to be operated downhole incuding an outer casing member, an inner casing member coaxially mounted within the outer casing member, means dividing the inner casing member into upper and lower chambers, a first piston mounted for reciprocation within said upper chamber, a second piston mounted for reciprocation within said lower chamber and a hollow piston rod interconnecting the first and second pistons, means for delivering fluid under pressure selectively to points in the upper chamber above and below said first piston respectively, to reciprocate the first piston in the upper chamber, and thereby the second piston in said lower chamber, valve means associated with said second piston for allowing fluid from the borehole to pass the second piston during a downward stroke thereof, means connecting the interior of the lower chamber with the annular space defined between the inner and outer casing members at a position above the uppermost point of travel of the second piston, means connecting the upper end of said annular space with a pipe for conveying said fluid to the surface, an end cap closing the upper end of said outer casing, said end cap having a first passage means extending therethrough for connecting said fluid conveying pipe to said annular space, a second passage means extending therethrough for conveying pressurized fluid to the interior of the upper chamber above said first piston and a third passage means extending therethrough for conveying pressurized fluid to a tube which is located within said upper chamber and extends through said first piston to deliver said pressurized fluid to the bottom of said upper chamber to act on the underside of said first piston.

4,383,804

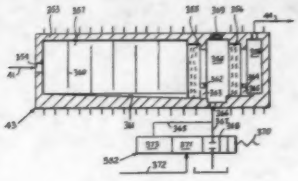
LUBRICATION AND SEALING OF A FREE FLOATING PISTON OF HYDRAULICALLY DRIVEN GAS COMPRESSOR

Tadeusz Budzich, 80 Murwood Dr., Moreland Hills, Ohio 44022

Continuation of Ser. No. 233,217, Feb. 10, 1981. This application Mar. 3, 1981, Ser. No. 240,016
Int. Cl.³ F04B *3/00, 5/00;* F01B *31/00*
U.S. Cl. 417—267 **8 Claims**

1. A double acting multicompression stage hydraulically driven gas compressor comprising a free floating piston assembly having a double acting hydraulic piston means guided in first bore means defining first and second chambers, and at least one double acting gas compression piston means guided in

second bore means and defining third and fourth chambers each provided with gas inlet and outlet means, pump means connected to reservoir means and connected to said first and said second chambers operable to induce a reciprocating motion in said free floating piston assembly, hydraulic oil seal means on said gas compression piston means, control means having means operable to maintain said hydraulic oil seal means at a pressure higher than gas pressure in said third and said fourth chambers and operable to induce controlled small



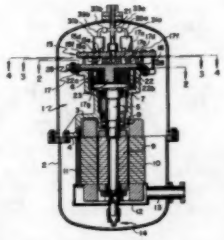
leakage of hydraulic oil into said third and said fourth chambers and to prevent gas leakage between said third and said fourth chambers and across said hydraulic seal means, compressed gas flow means connected to said gas outlet means, oil precipitator means operable to recover oil delivered from said hydraulic oil seal means to said third and said fourth chambers and to said compressed gas flow means, and precipitated oil unloading means communicable with said reservoir means operably connected to said precipitator means.

4,383,805

GAS COMPRESSOR OF THE SCROLL TYPE HAVING DELAYED SUCTION CLOSING CAPACITY MODULATION

Arlo F. Teegarden, Stoddard, and Robert E. Utter, Onalaska, both of Wis., assignors to The Trane Company, La Crosse, Wis.

Filed Nov. 3, 1980, Ser. No. 202,967
Int. Cl.³ F04B *49/02, 49/08;* F04C *18/02*
U.S. Cl. 417—308 **12 Claims**



1. A gas compressor of the positive displacement scroll type comprising

a. a first wrap element defining inner and outer flank surfaces of generally spiroidal configuration about a first axis and extending between first and second axial tip portions;

b. a second wrap element defining inner and outer flank surfaces of generally spiroidal configuration about a second axis and extending between first and second axial tip portions, said first and second wrap elements being disposed in intermeshing, angularly offset relationship with their respective axes generally parallel;

c. end plate means comprising a first end plate sealingly affixed to the first axial tip portion of said first wrap element and a second end plate sealingly affixed to the first axial tip portion of said second wrap element, the second axial tip portions of said first and second wrap elements extending to a point in substantial sealing relationship to said second and first end plates respectively; further comprising means for maintaining said second wrap element and end plate in a fixed position;

d. drive means operative to drive said first wrap element and end plate in an orbital path with respect to said second wrap element and end plate such that moving line coaction between the inner facing flank surface of said first wrap element and the outer facing flank surface of said second wrap element, and between the outer facing flank surface of said first wrap element and the inner facing flank surface of said second wrap element, defines between said end plate means first and second moving volumes originating at a radially outer portion of said wrap elements and progressing radially inwardly to a radially inner portion thereof, said volumes being bounded initially by a single, leading moving line of coaction so as to define a suction volume; then by both leading and trailing lines of coaction so as to define a closed moving volume which is progressively reduced in volume as it moves radially inwardly; and finally by a single trailing line of coaction so as to define a discharge volume;

e. port means for admitting a working gas at a suction pressure to said suction volumes and for discharging compressed gas from said discharge volume; and

f. unloader means for selectively varying the capacity of said gas compressor comprising

i. a first passage extending through said second end plate at a first location in communication with said first and second closed moving volumes at least at the time they are formed by said trailing lines of coaction, to a location in communication with working gas normally at suction pressure during operation of said compressor, said first passage having a dimension in a radial direction such that, as said first wrap element undergoes relative orbital motion with respect thereto, a closed moving volume lying on either side thereof is placed in communication with said first passage as the first wrap element passes thereover;

ii. a second passage extending through said second end plate at a location in communication with said first and second closed moving volumes at least from the time they are no longer in communication with said first passage and until they progress radially inwardly to predetermined positions, to a location in communication with working gas normally at suction pressure during operation of said compressor, said second passage being disposed radially inwardly from said first passage and having a dimension in a radial direction such that, as said first wrap element undergoes relative orbital motion with respect thereto, a closed moving volume lying on either side thereof is placed in communication with said second passage as said first wrap element passes thereover; and

iii. valve means for selectively blocking flow through said first and second passages whereby said gas compressor operates, at a relatively high capacity; and for permitting flow through said passages whereby gas is exhausted via said passages from said closed moving volumes as they are reduced in volume until they have progressed radially inwardly to the aforesaid predetermined positions, whereby the capacity of said gas compressor is reduced.

4,383,806

FUEL PUMPING APPARATUS

Robert T. J. Skinner, High Wycombe, England, assignor to Lucas Industries Limited, Birmingham, England

Filed Oct. 14, 1980, Ser. No. 196,389
Claims priority, application United Kingdom, Nov. 22, 1979, 7940461
Int. Cl.³ F04B *19/00, 29/00*
U.S. Cl. 417—462 **8 Claims**

1. A rotary drive fuel injection pump for supplying fuel to an

internal combustion engine comprising a rotary member driven in use, in timed relationship with an associated engine, a bore formed in the rotary member, a plunger in said bore, means for imparting inward movement to said plunger as the rotary member rotates, passage means for conveying fuel displaced from said bore whilst the plunger is moved inwardly, to an outlet which in use is connected to an injection nozzle of the engine, the means for imparting inward movement allowing limited outward movement of the plunger whilst the bore is in communication with the outlet, the means for imparting in-

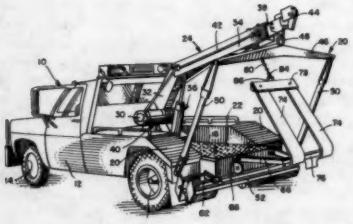
ward movement to the plunger comprises a follower operatively connected to the plunger and rotatable therewith, and a roller located in a recess in a part retained against rotational movement, said recess extending in the direction of rotation of the rotary member, the arrangement being such that when the follower engages the roller the latter is driven against one end wall of the recess and inward movement is imparted to the plunger, the roller being driven away from said end wall as the follower moves over the roller thereby allowing rapid outward movement of the plunger.

4,383,807

TOWING VEHICLE, BOOM, WINCHING AND LIFTING APPARATUS

Leslie Bubik, Toronto, Canada, assignor to Vulcan Equipment Company, Ltd., Scarborough, Canada

Filed May 8, 1981, Ser. No. 261,753
Int. Cl.³ B60P *3/12*
U.S. Cl. 414—563 **8 Claims**



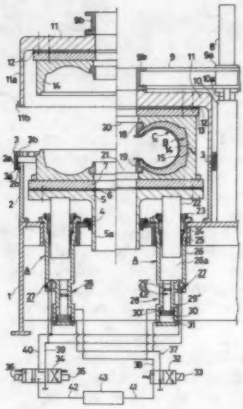
1. A towing and lifting apparatus, comprising:
a vehicle having a rear body and a rear end;
a boom mounted on said rear body and extending at least to the rear end of the vehicle;
a belt sling assembly including a rigid portion and a flexible portion, said rigid portion having one end pivotally mounted at said rear end of the vehicle adjacent an upper surface of said rear body and the other end connected to said flexible portion, said belt sling assembly being connectable to said boom for the towing of another vehicle;
a wheel lift sling assembly associated with said boom for the towing of another vehicle; and
at least a rearward portion of said body being constructed with a low profile to accommodate pivotal movement of said belt sling assembly to a storage position overlying said rearward portion of said body to permit independent operation of said boom and wheel lift sling assembly.

4,383,808

VULCANIZING PRESS FOR MANUFACTURING TIRES

Masayoshi Kubo; Akira Hasegawa; Katsuyoshi Sakaguchi, and Shozo Fukuda, all of Nagasaki, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Japan

Filed Jun. 8, 1982, Ser. No. 386,332
Claims priority, application Japan, Jun. 10, 1981, 56-88046
Int. Cl.³ B29H *5/02, 5/08*
U.S. Cl. 425—47 **1 Claim**



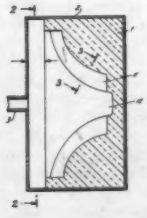
1. A vulcanizing press for manufacturing tires which is constructed such that a molding die assembly is clamped by means of a plurality of hydraulic cylinder units, wherein the respective hydraulic cylinder units are provided with a booster for serving to pressurize hydraulic liquid to actuate a ram slidably contained in a hydraulic chamber and a pilot operated check valve for controlling supply of hydraulic liquid into said hydraulic chamber or discharge of the same therefrom.

4,383,809

CAPSULE FOR USE IN HOT ISOSTATIC PRESSING OF WORKPIECES

Wilhelm Hoffmüller, Munich, Fed. Rep. of Germany, assignor to Motoren-und Turbinen-Union Munchen GmbH, Munich, Fed. Rep. of Germany

Filed Mar. 5, 1981, Ser. No. 240,643
Claims priority, application Fed. Rep. of Germany, Mar. 18, 1980, 3010299
Int. Cl.³ B30B *11/00;* B22F *3/12*
U.S. Cl. 425—78 **3 Claims**



1. A capsule for use in hot isostatic pressing of a complex-shape workpiece, comprising:

a ceramic core formed with a cavity having the negative contour of the workpiece, the cavity being open on one side of the core, and

a metal skin enclosing the core, the skin being spaced from the side of the core having the cavity opening and snugly fitting all the remaining sides of the core.

4,383,810

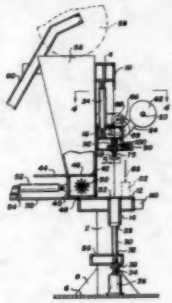
FORMING CONCRETE SUPPORT CHAIRS

Norman W. Bunn, 1394 Chartwell Dr., West Vancouver, and Christopher B. Bunn, 406-120 E. Keith Rd., North Vancouver, both of British Columbia, Canada

Continuation of Ser. No. 24,161, Mar. 26, 1979, abandoned. This application Jan. 16, 1981, Ser. No. 225,687

Int. Cl.³ B28B *3/02, 3/08*

U.S. Cl. 425—122 **13 Claims**



1. Apparatus for forming concrete building blocks, comprising:

a supporting framework;

a stationary central platen mounted on the framework,

a plurality of laterally spaced and vertical open-ended female dies carried by the central platen,

an upper platen mounted on the framework for movement towards and away from the central platen between an upper position and a lower position;

a plurality of upper male dies carried by the upper platen and aligned respectively with the female dies, said male dies being respectively spaced above and inserted a predetermined depth in the female dies when the upper platen is in the upper position and lower position;

means to reciprocate the upper platen between the upper and lower positions thereof;

a lower platen mounted on the framework for movement towards and away from the central platen between a lower position and an upper position,

a plurality of lower male dies carried by the lower platen and aligned respectively with the female dies,

means to fix the lower position of the lower platen so that each lower male die is positioned in the open lower end of a corresponding female die a predetermined amount,

means to reciprocate the lower platen from the lower position to the upper position thereof in which the upper surface of each lower male die is substantially flush with the upper end of the corresponding female die,

a supply box for concrete mix reciprocable on a pathway between a first position in which it can be filled with concrete mix and a second position over the central platen and the female dies thereof where it can fill the female dies with concrete mix,

wire supply means mounted on the upper platen for movement therewith and for supplying at least one wire to each female die,

a vertical opening through each upper male die and through which one of said wires extends,

feed means on the upper platen for each of said wires, and

power means on the upper platen operatively connected to said feed means and selectively operable to move each wire through its respective upper male die and into the concrete mix in the female die into which said respective male die moves.

4,383,811

CORD TENSION DEVICE FOR PLUG MAKING MACHINE

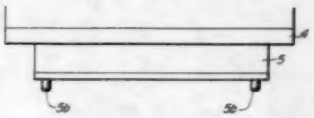
Eiithi Nishida, Sakai, Japan, assignor to Tokai Electric Wire Company Limited, Yokkaichi, Japan

Filed Jan. 8, 1981, Ser. No. 223,306

Claims priority, application Japan, Jan. 11, 1980, 55-2336

Int. Cl.³ A23G *1/20;* **B22D** *19/04*

U.S. Cl. 425—123 **4 Claims**



1. An electric plug making machine comprising:

a mold having a stationary part and a movable part;

said parts each having respective mold cavity portions forming a mold cavity for receiving an electric cord end connected to plug terminals for the integral molding of a plug and a cord protector when said movable part is moved to meet with said stationary part;

a device for holding said plug terminals in a predetermined position in said mold cavity; and

a cord tension device for applying a tensile force to the cord after the cord end is placed in said mold to correctly position the end in said cavity,

said cord tension device including clamping means disposed outside said mold and adapted to clamp a portion of said cord projecting out of said mold, driving means disposed outside said mold for moving said clamping means away from said plug terminals thereby to hold taut the cord between said clamping means and the terminals and to position the cord correctly in said mold cavity, and means for automatically controlling the successive operation of said movable mold part, clamping means and driving means.

4,383,812

EXTRUSION HEAD FOR MOLDINGS TO BE USED IN THE CONSTRUCTION OF WINDOW, DOOR AND THE LIKE FRAMES

Mario Calcagni, Via Roccolo 24, Morazzone, Italy

Filed Jul. 7, 1980, Ser. No. 166,226

Claims priority, application Italy, Nov. 30, 1979, 27759 A/79

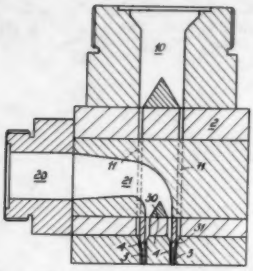
Int. Cl.³ B29F *3/04*

U.S. Cl. 425—133.1 **3 Claims**

1. An extrusion head for moldings to be used in the construction of windows, door and like frames, comprising: a first closed contour extrusion mouth defining an axis of the extrusion head, a second closed contour extrusion mouth coaxial therewith and located internally to said first closed contour extrusion mouth, a first plastic material supply canalization in communication with and extending coaxially with respect to said first extrusion mouth, said first canalization having an inlet length, an intermediate length coaxial therewith and comprising two spaced apart channel branches arranged side by side with respect to each other and opening with one end thereof into said inlet length and opening with the other end thereof into said first extrusion mouth, a core portion between said two channel branches separating laterally said channel branches

from each other to leave free an intermediate body portion thereof therebetween,

a second plastics material supply canalization in communication with said second extrusion mouth and having an input length substantially perpendicular to said first plastics material supply canalization and extending in a median plane thereof substantially parallel to said axis, an intermediate extension of said second canalization extending in a plane parallel with said median plane and comprising two spaced apart duct branches of substantially elongated configuration in cross-section arranged side by side with



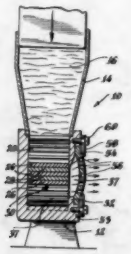
respect to each other and opening with one extremity thereof into said input length and opening with the other extremity thereof into said second extrusion mouth, said two spaced apart duct branches extending through said intermediate body portion at a distance from said two spaced apart channel branches of the first canalization to avoid thereby interference therewith, said two spaced apart duct branches having an elbow like bend in an intermediate zone thereof within said intermediate body portion thereby to direct said other extremity thereof coaxial with said second extrusion mouth.

4,383,813

PASTA EXTRUDER APPARATUS

Allen F. Podell, Palo Alto, and Richard S. Davis, San Francisco, both of Calif., assignors to Cuisinarts, Inc., Greenwich, Conn.

Filed Jul. 23, 1981, Ser. No. 286,286
Int. Cl.³ B29F *3/01;* A21C *3/04*
U.S. Cl. 425—204 **10 Claims**



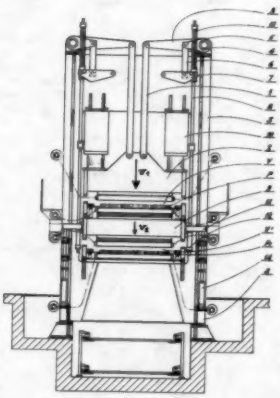
1. Pasta extruder apparatus comprising a pair of gears of similar size; said gears being rotatable about respective spaced, parallel horizontal axes; said gears having peripheral teeth engaging each other in a meshing zone in a closely interfitting relationship; drive means for rotating said gears in opposite directions; a housing closely surrounding said gears having an in-feed hopper for feeding a pasta mixture into the spaces between the teeth of said two gears at a location spaced from said meshing zone for causing the teeth of said oppositely rotating gears to propel the pasta mixture toward the zone where the teeth of the two gears are meshing with each other; said housing defining a pressure chamber communicating with the peripheries of said gears immediately upstream from said meshing zone for the rotating gears to push said pasta mixture out of the respective spaces between the meshing teeth into the pressure chamber under pressure; and an extrusion die adjacent to said pressure chamber having a plurality of orifices communicating with said pressure chamber for extruding the pasta out through said orifices said die being axially adjacent said gears.

4,383,814

APPARATUS FOR THE SIMULTANEOUS CLOSING OF THE TWO OPENINGS OF A PRESS FOR MANUFACTURING WOOD CHIPBOARD OR FIBREBOARD OR THEIR SUBSTITUTES

Sergio Roccati, and Lino Cecini, both of Monza, Italy, assignors to F.LLI Pagnoni S.p.A., Italy

Filed Jan. 21, 1982, Ser. No. 341,165
Claims priority, application Italy, May 22, 1981, 21861/81[U]
Int. Cl.³ B29J *5/08;* B30B *1/08, 7/02*
U.S. Cl. 425—338 **16 Claims**



1. An apparatus for simultaneously closing two openings of a press for manufacturing particle board, the press having a frame, a lower plate connected to the frame, an upper plate movably mounted to the frame and an intermediate plate between the upper and lower plate and defining an upper opening with the upper plate and a lower opening with the lower plate, comprising:

drive means connected to the upper plate for moving the upper plate downwardly to close the upper opening; and

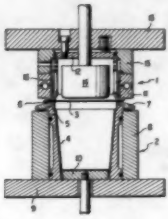
a lever system disposed on each side of the frame, each lever system comprising a plurality of levers in a lever chain connected between the upper and intermediate plate with at least one lever connected to the frame, each lever system operable together to move the intermediate plate downwardly to close the lower opening with movement of the upper plate downwardly to close the upper opening;

each lever system substantially disposed in an upper part of the press.

4,383,815
MOLDING TOOL

Günther Kiefer, Schwaigern, and Dieter Rücker, Leingarten, both of Fed. Rep. of Germany, assignors to Adolf Illig Maschinenbau GmbH & Co., Heilbronn, Fed. Rep. of Germany

Filed Feb. 11, 1982, Ser. No. 348,155
Claims priority, application Fed. Rep. of Germany, Mar. 12, 1981, 3109415
Int. Cl.³ B29C 17/00
U.S. Cl. 425—387.1 12 Claims

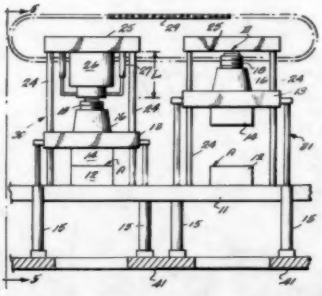


1. In a molding tool for making articles by deep-drawing a heated thermoplastic foil, including a matrix having an inner wall face defining an opening, a mold defining a mold cavity aligned with said opening, and a depressor movably received in said opening of the matrix for clamping marginal portions of the foil during molding operation, the improvement comprising a heat conducting sleeve immobilized in said opening and surrounding said depressor; said sleeve having an inner face oriented towards said depressor and an outer face oriented towards said matrix; said outer face of said sleeve and portions of said inner wall face of said matrix defining an annular chamber surrounding said sleeve; sealing means provided between said matrix and said sleeve for rendering said annular chamber fluid tight; and channels provided in said matrix and communicating with said annular chamber for introducing a coolant thereinto.

4,383,816
MULTIPLE MOLD CLAMPING APPARATUS

Hiroshi Kumazaki, Numazu, Japan, assignor to Toshiba Kikai Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 21, 1982, Ser. No. 370,590
Claims priority, application Japan, May 21, 1981, 56-77037
Int. Cl.³ B29F 1/00
U.S. Cl. 425—451.9 19 Claims



1. Multiple mold clamping apparatus comprising:

a plurality of mold clamping stations, each station comprising fixed die plate means defining a first die cavity, a rest plate opposingly disposed to said fixed die plate means and being fixedly separated therefrom by a predetermined distance; movable die plate means slidably reciprocable between said fixed die plate means and said rest plate defining a second die cavity opposing said first die cavity so that when said movable die plate means is moved to a contacting relationship with said fixed die plate means, said first and second die cavities together define a molding cavity for molding an article therein; and moving means for reciprocably moving said movable die plate means relative to said fixed die plate means;

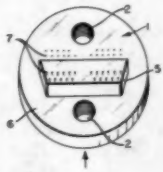
at least one hydraulic cylinder unit slidably mounted between said rest plate and said movable die plate means including piston means reciprocably movable in said cylinder unit for contacting said movable die plate means; and

conveying means for conveying said cylinder unit from one molding station to another.

4,383,817
SPINNERET PLATE

Michael E. Mirhej, Signal Mountain, Tenn., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Feb. 11, 1982, Ser. No. 347,925
Int. Cl.³ A01J 21/00
U.S. Cl. 425—463 10 Claims

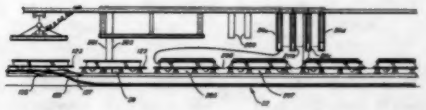


1. A spinneret plate for use in spinning synthetic polymeric filaments having a first surface which is planar, a plurality of capillaries extending through said plate at right angles to the plane of the first surface, some of said capillaries being a different length than other of the capillaries, said capillaries having a counterbore that extends from the first surface a portion of the distance through said plate.

4,383,818
MOLDING PROCESS

Leslie E. J. Swannell, Antrim, Northern Ireland, assignor to Delorean Research Limited Partnership, Bloomfield Hills, Mich.

Filed Dec. 31, 1980, Ser. No. 221,796
Int. Cl.³ B29F 1/00
U.S. Cl. 425—546 6 Claims



1. In an assembly line in which wheeled bogies are transported by a continuous chain drive in an endless path, apparatus for conveying the said bodies over a portion of said path in a manner such as to avoid jars and vibrations comprising;

a. a glide roller drive system comprising a plurality of spaced rollers adapted to support said bogies such that their wheels are off the ground;

b. means of restraining said bogies laterally;

c. ramp means for directing said bogie from its normal track onto said rollers in such a manner that said bogie simulta-

neously comes into contact with a plurality of said rollers over its length so as to be immediately supported; and

d. means to direct said chain drive to a position below said bogie so as to disengage said chain drive from said bogie and move said chain in a position away from said bogie.

4,383,819

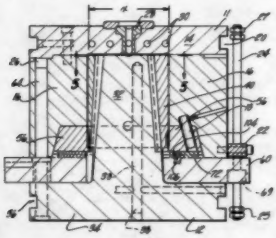
APPARATUS FOR FORMING A CONTAINER

Ilija Letica, Oxford, Mich., assignor to Letica Corporation, Rochester, Mich.

Continuation of Ser. No. 169,331, Jul. 16, 1980, abandoned. This application Feb. 12, 1982, Ser. No. 348,480

Int. Cl.[3] B29F *1/00*; B29C *1/00, 7/00*

U.S. Cl. 425—577 6 Claims



1. Apparatus for injection molding a substantially straight-sided cylindrical pail having a reduced diameter neck adjacent the opening thereof comprising:

a base (12 or 34);

a tapered inner core (32) on said base and having slide means (48), (50) thereon; a plurality of alternately reversely-segmented outer core elements (40) slideably mounted on said slide means (48), (50) for reciprocal motion along the axis of said tapered inner core;

said outer core elements (40) collectively defining a cylindrical outer surface to form the inner diameter of said pail, said cylindrical outer surface having a reduced diameter portion to form the neck of said pail;

ejector means (60) for effecting relative displacement between the outer core elements (40) and the base (14) to collapse and expand the outer core elements and the cylindrical outer surface formed thereby to permit a finished pail to be removed from the core elements (40);

a plurality of outer neck mold segments (56) disposed on said ejector means (60) and about but spaced radially from the outer core elements (40) to define the outer neck surface of the pail;

means (72) for permitting sliding of said neck mold segments (56) radially inwardly and outwardly on said ejector means (60) to mold and release said pail, respectively;

an outer mold (16) having a substantially straight-sided cylindrical inner surface to define the outer surface of said pail;

means (11) for reciprocally displacing mold (16) relative to the base (14) between a molding position in which mold (16) rests on and sealingly contacts said segments (56) and a release position axially remote from said segments (56); and means (18) mechanically interconnecting the mold (16) with segments (56) to slide the segments (56) radially outwardly as the mold (16) moves to the remote position.

4,383,820

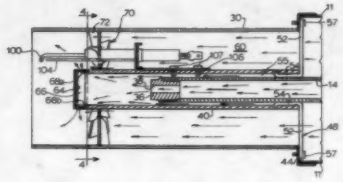
FUEL GAS BURNER AND METHOD OF PRODUCING A SHORT FLAME

Salvador L. Camacho, Raleigh, N.C., assignor to Technology Application Services Corporation, Raleigh, N.C.

Filed Oct. 10, 1980, Ser. No. 195,779

Int. Cl.[3] F23C *5/00*; F23Q *3/00*

U.S. Cl. 431—8 3 Claims



1. A method of producing a relatively short flame emanating from the burner barrel of a gas-fired burner comprising the steps of:

(a) supplying a flow of combustion air to the upstream end of the burner barrel;

(b) directing fuel gas through a tubular gas conduit having a straight terminal end portion within and concentric with the burner barrel and a discharge end located upstream from the downstream end of the burner barrel;

(c) directing a selected minor portion of the flow of combustion air through a first annulus formed between the gas conduit and a gas/air mixing tube mounted within said burner barrel concentrically around the gas conduit and extending a predetermined distance beyond the gas conduit to a downstream end located upstream from the downstream end of the burner barrel and downstream from the discharge end of said gas conduit and allowing said selected minor portion of combustion air and fuel gas exiting the discharge end of said terminal end portion of said tubular gas conduit to mix within said mixing tube prior to exiting therefrom;

(d) directing the remaining and major portion of the combustion air in the burner barrel through an second annulus formed between the mixing tube and the burner barrel, and through a swirl assembly mounted on the mixing tube in the second annulus upstream from and proximate the downstream end of the mixing tube;

(e) deflecting the gas/air mixture exiting the downstream end of the mixing tube with a deflector plate providing a flat deflection surface in a plane substantially perpendicular to the axis of said mixing tube so as to intermix such gas/air mixture with said remaining and major portion of combustion air passing through said swirl assembly at a location within said burner barrel forward of the downstream end of said mixing tube;

(f) sweeping the deflected gas/air mixture away from the downstream side of the swirl assembly by means of a stream of air emanating from a gap formed between the swirl assembly and the mixing tube; and

(g) igniting the gas/air mixture flowing from said swirl assembly and sustaining the base of the flame produced therefrom at a location within the downstream end of said barrel.

4,383,821

AUTOMATIC SHUTOFF FOR SULFUR MELTER APPARATUS

Robert W. Campbell, Lafayette, Calif., assignor to Chevron Research Company, San Francisco, Calif.

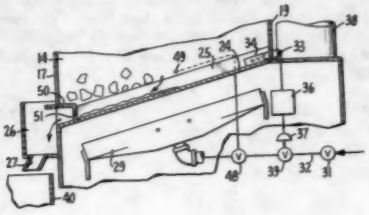
Filed Feb. 20, 1981, Ser. No. 236,561

Int. Cl.[3] F27B *9/40, 17/00*; E01C *19/45*

U.S. Cl. 432—43 4 Claims

1. In a sulfur powder melting apparatus comprising covered sulfur-containing hopper means having a heat transmitting bottom plate sloped at an angle from 10° to 70° from horizon-

tal, combustion heating means located beneath said bottom plate to directly heat said bottom plate and melt sulfur in contact therewith, molten sulfur collecting means communicating with said bottom plate and located at the lower end of said bottom plate sloped at an angle of from 10° to 70° and molten sulfur discharge means exiting said molten sulfur collection means the improvement which comprises an automatic shutoff for said heating means, which shutoff comprises temperature sensor means located at or about the top surface of the upper end of said sloped bottom plate and connected to means for shutting off the heating means when the temperature sensed by said sensor exceeds a preset temperature related to the melting point of sulfur.



4,383,822

REFRACTORY SHEATHING MADE FROM INSULATING SHAPES FOR VERTICAL SUPPORT MEMBERS IN HEAT-TREATING FURNACES

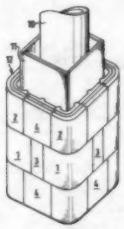
Peter Schatschneider, Rommerskirchen, Fed. Rep. of Germany, assignor to Bloom Engineering (Europa) GmbH, Dusseldorf, Fed. Rep. of Germany

Filed Aug. 19, 1981, Ser. No. 294,136

Claims priority, application Fed. Rep. of Germany, Aug. 26, 1980, 3032174

Int. Cl.³ F27D *1/00, 3/02;* F16L *9/00, 9/14*

U.S. Cl. 432—247 **8 Claims**



1. In a refractory sheathing made from insulating shapes for vertical support members, in particular riser pipes, in heat-treating furnaces, particularly pusher furnaces and walking beam furnaces fired from below, including an inner refractory, fibrous, insulating layer surrounding the support members and an outer layer formed of courses of positively interengaging refractory shapes of the same height in each course throughout surrounding said inner layer said shapes including angle pieces having legs extending substantially normal to one another and intermediate straight pieces extending between the legs of respective angle pieces in each course, the improvement comprising a first course having shapes including only equal-leg angle pieces and straight intermediate pieces and an adjacent second course having equal-leg angle pieces of different leg lengths from the angle pieces of said first course and straight intermediate pieces of different lengths than said straight pieces of said first course whereby the adjacent courses have staggered joints, each of said shapes having grooves on two contiguous sides at right angles, and tongues on both of the other contiguous sides at right angles, and said inner layer being formed of substantially rigid, flat insulating boards.

4,383,823

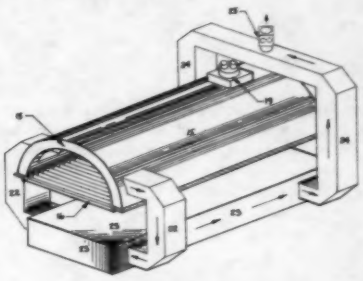
RADIANT OVEN FOR BAKING BREAD

Robert W. Williams, 167 Brookville Rd., Brookville, N.Y. 11545, and Vincent Montaruli, 36 Crosby St., Sayville, N.Y. 11782

Filed Jun. 12, 1981, Ser. No. 273,089

Int. Cl.³ F27B *9/00*

U.S. Cl. 432—148 **4 Claims**



1. A baking oven for bread comprising a top radiant heat bank ceramic horizontally disposed oven wall of semi-cylindrical construction having a front portion and rear portion to form a combustion chamber; a bottom radiant heat bank plate means engaging said ceramic wall in a non-air tight relationship to provide leaked air into the combustion chamber; a metal continuous conveyor, having a top portion separated from a bottom portion, disposed beneath said radiant plate and adapted to convey bread loaves in its top portion in suitable space relationship to said radiant heat plate, a burner disposed in the top of said ceramic wall; inlet duct opening means engaging said ceramic combustion chamber; an elongated heat chamber means disposed between the said top and the said bottom portions of said conveyor; exit duct means engaging said elongated heat chamber at its front portion for removal of said combustion gases and leaked air to the atmosphere; and exhaust fan means for producing a vacuum to produce leaked atmospheric air beneath the ceramic wall and into the combustion chamber whereby combustion gases are prevented from entering the bread baking area of the oven.

4,383,824

AIR-HEATING GAS BURNER

James W. Findlay, Droitwich; John Darby, Wollescote; David Lewis, West Heath, and Donald F. Wenn, Cleeve Prior, England, assignors to Nu-Way Energy Limited, Droitwich, England

Filed Dec. 3, 1980, Ser. No. 212,740

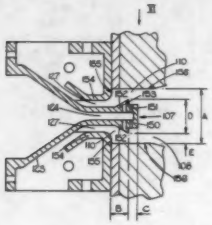
Claims priority, application United Kingdom, Dec. 5, 1979, 7941933

Int. Cl.³ F24H *1/00*

U.S. Cl. 432—222 **14 Claims**

1. An air-heating gas burner comprising a housing and an air supply passage within said housing, a gas supply passage within said air supply passage, said gas supply passage extending externally of said housing to define in conjunction therewith an air outlet for said air supply passage, said gas supply passage having adjacent an end thereof downstream of said air outlet a gas outlet for directing a gas-stream transversely of the direction of flow of an air-stream emerging from said air outlet, first walls for confining and directing said air-stream past said gas outlet, said first walls extending from adjacent said air

outlet to a location downstream of said fuel gas outlet and second walls for confining the products of combustion emerging from the downstream end of a combustion zone defined between the first walls, said gas supply passage including an



outwardly projecting baffle device upstream of said gas outlet for creating turbulence in said air-stream adjacent said gas outlet, and a further gas outlet communicating with said gas supply passage and extending through said baffle device transversely of said gas supply passage.

4,383,825

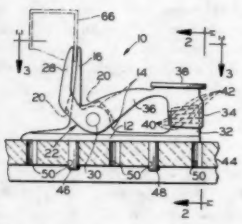
HOLDING DEVICE FOR THE FIRING OF CERAMICS AND THE LIKE

Dennis L. Crouse, 8961 E. 10-Mile Rd., Manton, Mich. 49663

Filed Sep. 17, 1981, Ser. No. 303,176

Int. Cl.³ F27D *5/00*; **B25B** *7/00, 7/14*; **B23Q** *3/02*

U.S. Cl. 432—258 **18 Claims**



1. A holding device for supporting a workpiece, comprising main body means, lever means, pivot connection means pivotally interconnecting said lever means to said main body means, a first fixed abutment member carried by said main body means, a second abutment member carried by said lever means, said second abutment member being movable toward and away from said first abutment member upon pivotal rotation of said lever means, said second abutment member being movable by said lever means as to cooperate with said first abutment member to hold and support said workpiece, and disengageable latching means carried by said main body means and said lever means for maintaining said second abutment member in a selected position relative to said first abutment member as to thereby assure the continued holding and support of said workpiece.

4,383,826

ADDUCTS OF DIISOCYANATES AND METHACRYLOYL ALKYL ETHERS, ALKOXYBENZENES OR ALKOXYCYCLOALKANES, COMPOSITIONS CONTAINING SUCH COMPOUNDS, AND METHOD OF USE THEREOF

David V. Butler, West Covina; Patrick D. Kidd, San Dimas, and Jan A. Orlowski, Altadena, all of Calif., assignors to Blendax-Werke R.Schneider GmbH & Co., Fed. Rep. of Germany

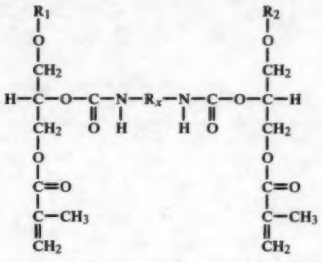
Filed Jun. 23, 1981, Ser. No. 276,680

Claims priority, application European Pat. Off., Jul. 23, 1980, 80104311.8

Int. Cl.³ A61K *6/08*

U.S. Cl. 433—228 **43 Claims**

1. A compound of the formula:



wherein R_1 and R_2 are individually straight or branched chain, substituted or unsubstituted alkyl groups having 1 to 14 carbon atoms, a substituted or unsubstituted aryl group, or a substituted or unsubstituted cycloalkyl group, and R_x is a divalent, aliphatic, cycloaliphatic, araliphatic, or aromatic radical having 2 to 14 carbon atoms.

4,383,827

DRIVING SIMULATOR

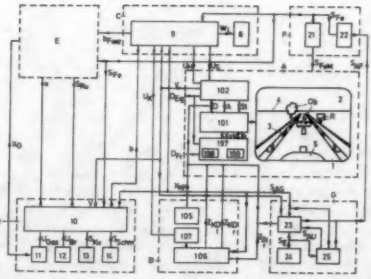
Reiner Foerst, Gummersbach, Fed. Rep. of Germany, assignor to Dr.-Ing. Reiner Foerst GmbH, Marienheide, Fed. Rep. of Germany

Filed Jul. 2, 1980, Ser. No. 165,408

Claims priority, application Fed. Rep. of Germany, Jul. 2, 1979, 2926654

Int. Cl.³ G09B *9/04*

U.S. Cl. 434—69 **17 Claims**



1. A device for the simulation of a ride on a curved road using a screen of a monitor for the picture of the road perspectively observed by the driver, as well as using a program for the generation of the road picture, as well as using control devices such as accelerator pedal, brake pedal, clutch pedal, gear shift lever and steering wheel, which devices influence the road picture, as well as using several light spot pair genera-

tors, means for generating a speed signal with a voltage-frequency converter supplying a base pulse, a speed proportional signal generator, a digital curve sequence generator, several standard curve function generators, a curve sequence program generator, means for determining the curvature of the road, the track angle and the parallel track position, a curvature function generator and a distance program generator, as well as using a device for signal combination, as well as using image generators for the front part of the vehicle and for simulated partner vehicles, said device comprising in combination:

(a) a plurality of range wedge generators, including right, left, outside, inside and intermediate range wedge generators, each of which generators within limits an intermediate wedge shaped area and an intermediate band each of which includes:

at least one integrated digital random access memory component including an adding device and a subtraction device having output signals, for storing reference signals processed by the individual range wedge generator and which is supplied for a short period only; two comparators in which the outputs of the subtraction device and the adding device are compared; two AND-gates to which the positive carry bit of the adding device is supplied for the prevention of double pictures at overflow; two further AND-gates to which the negative carry bit of the subtraction device is supplied; two further AND-gates the inputs of which being the equal outputs of the two comparators and the outputs of which being the output of the range wedge generator; and a further AND-gate, one input of which being the output of the comparator for the right range wedge limit and for the left range, and the other input of which being the output of the comparator for the left range wedge limit and for the right range, and the output of which being the video signal for the range wedge area, all range wedge generators being equal;

(b) ceiling area pair generators for the representation of a nearly rectangular area being parallel to the road plane and to the axis of the road; each of which includes:

a random access memory for storing a line select signal for the nearly rectangular area; and AND-gate in which the signal supplied by a range wedge generator for the outside range wedge of the ceiling pair, is combined together with the signal supplied by a range wedge generator for the inside range wedge of the ceiling pair and which is inverted in an inverter, into a double wedge shaped ceiling stripe pair to produce a signal accordingly;

(c) plate area signal generator means, for the repesentation of rectangular lined areas which are vertical to the road plane and perpendicular to the axis of the road; each of which includes:

a first random access memory for storing the upper line signal of all plate areas;

a second random access memory for storing the lower line signal of all plate areas, a flip-flop supplying a plate area beam signal which is set by the upper line signal and reset by the lower line signal;

four random access memories each storing outputs of the two range wedge generators defining the upper plate area corners when the signal for the upper line of the plate area pair is positive;

(d) wall area generators, for the representation of nearly rectangular areas which are vertical to the road plane and to the axis of the road; each of which includes:

a first random access memory for storing the line for the upper far corner of the wall areas;

a second random access memory for storing the line for the upper near corner of the wall areas these memories being updated at the beginning of every monitor line for the height level of the upper wall area limit;

four random access memories each storing outputs of the range wedge generator defining the upper limit of the right and the left wall areas when the signals for the lines of the far and the near upper corners of the wall area pairs are positive;

(e) random access memories for the abscissas of the vertical rows for a certain number of lines, which store these abscissas as trunk abscissas until the next area pair appears said next area pair being either wall or plate area pair signals;

(f) rectangle generators for supplying the horizontal and vertical signals for the rectangular areas; each of which includes:

four random access memories which store the horizontal and vertical values for the left, and for the right limits,

two comparators each in pairs for comparing the horizontal and vertical outputs for the rectangular areas;

(g) a write-read memory for storing the abscissas for the middle of the road, the line select signals, and the rectangle coordinates, which is written by a speed proportional signal generator and a buffer for the writing process therewith;

(h) a multiplying device for supplying the width signals; and

(i) a generator means for supplying pulses for the height presetting, to said multiplying device for the width presetting, according to the individual height and width factor of one range wedge; the generator means including a device for the logical selection of the write/read pulse.

4,383,828

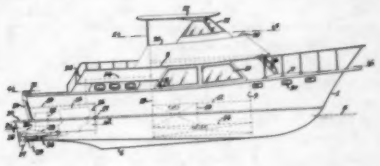
POWER BOAT WITH EXTENDED PROPELLER POCKET

James R. Wynne, 261 SW. 6th St., Miami, Fla. 33130

Continuation of Ser. No. 23,145, Mar. 23, 1979, abandoned. This application Jul. 27, 1981, Ser. No. 287,270

Int. Cl.³ B63H *5/16*

U.S. Cl. 440—*69* **9 Claims**



1. In a power boat having a hull with a bottom and a stern transom, a first tunnel portion in said bottom extending rearwardly from a forward end forwardly of said transom, tunnel extension means extending rearwardly from said transom and defining a tunnel extension portion continuous with said first tunnel portion, said first tunnel portion and said tunnel extension portion being below the at-rest waterline of the boat, a screw propeller disposed in said extension portion and being completely submerged when said boat is at-rest, an engine disposed in said hull closely adjacently forward of said transom, and a short straight propeller shaft at an acute angle with respect to said waterline carrying said propeller and drivingly connected to said engine, said tunnel extension means including extension portions on both sides of said tunnel portion in the same general plane as said bottom adjacent said transom, said extension portion and said tunnel extension means extending generally the full width of said boat adjacent said transom whereby the lift adjacent said stern is increased to compensate for the reduction of lift caused by said first tunnel portion in said bottom.

4,383,829

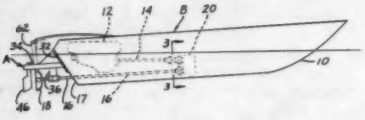
DRIVE ASSEMBLY FOR INBOARD SPEEDBOAT

Harry L. Allen, Jr., Mentor, Ohio, and Michael J. Stewart, Bethel Park, Pa., assignors to Great Lakes Power Products, Inc., Mentor, Ohio

Continuation of Ser. No. 88,135, Oct. 25, 1979. This application Mar. 18, 1982, Ser. No. 359,295

Int. Cl.³ B63H *21/26*

U.S. Cl. 440—75 **1 Claim**



1. A drive and steering mechanism for a propeller drive inboard speedboat having a planing type hull with a transom comprising; drive means having a driveshaft extending therefrom, a coacting propeller shaft extending longitudinally through the boat and through a portion of the transom and having a propeller on its outer end, a coacting at least one-speed forward, step-up, hydraulic transmission operatively connecting said driveshaft and said propeller shaft, whereby the propeller shaft revolves faster than the driveshaft, said transmission including a coacting V-drive gearing operatively connecting said driveshaft and said propeller shaft, thereby effecting a V-drive structure for the drive mechanism, a coacting one-piece, unitary strut and stern steering support assembly for placement directly on the transom of an inboard motorboat comprising, a coacting transom member, means for securing the transom member to the boat transom, a coacting elongated planar structural member secured to the transom member in substantially the central portion of the transom member between its top and bottom edges and extending rearwardly therefrom and having a pair of coacting spaced rudder support means operatively disposed on and solely supported by said structural member intermediate the forward and rearward edges thereof for operatively receiving rudder assemblies therein, a pair of coacting spaced strut support members secured to the structural member and extending downwardly therefrom forwardly of the propeller and having coacting propeller shaft support means for operatively receiving associated propeller shafts therein, a pair of coacting spaced reinforcing members secured to the structural member and to the transom member for reinforcing the juncture of such latter members, a coacting elongated open-ended linear tube disposed on the stern of the boat with its lower end spaced directly above and slightly from the propeller and with its upper end extending in a straight line to above the waterline, whereby as the boat is in operation air is drawn from the atmosphere and drawn down said tube to the propeller and into the propeller stream to control propeller stream cavitation, and a manually-operated valve operatively disposed at the top end of said tube and adapted to selectively close the top end of the tube for selectively controlling the flow of air through the tube.

4,383,830

ROWING RIGS

Andrew S. Cartwright, 13, Broad St., Hay-on-Wye, Hereford, England

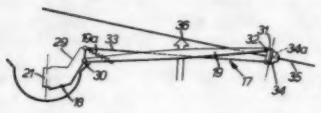
Filed Mar. 6, 1980, Ser. No. 128,369

Claims priority, application United Kingdom, Mar. 14, 1979, 7909029

Int. Cl.³ B63H *16/04*

U.S. Cl. 440—104 **2 Claims**

1. An outrigger for supporting an oar comprising, a support, means for mounting the support on a boat to extend upwardly therefrom, an elongate link, means for pivotally connecting one end of the elongate link to the support such that the elongate link extends away therefrom, a carrier, means for pivotally mounting the carrier at the other end of the elongate link such that it depends therefrom, means for interconnecting the carrier at a point below said other end of the elongate link to the support at a point above the one end of the elongate link, the interconnecting means passing through the elongate link, and means for supporting an oar between the ends thereof on the carrier, the arrangement being such that when a force is applied to the oar in a sense to upwardly pivot the blade of the oar the apparent point of pivot lies between the carrier and the grip of the oar.



2. A rowing rig for a boat, comprising a pair of upright arms at either side of the boat, the upper ends of the arms being mounted for pivotal movement about a common horizontal axis extending transversely of the boat, a stretcher extending between and carried by the lower ends of said arms, further arms upstanding from said stretcher, rowlocks carried by the upper ends of said further arms adjacent the gunwales of the boat, guide means for guiding the further arms for fore-and-aft movement, and link means pivotally interconnecting the further arms and the boat to maintain said further arms upright upon swinging movement of the stretcher about said common horizontal axis.

4,383,831

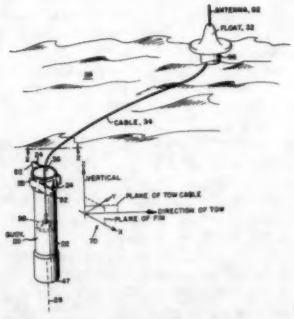
STABILIZED SUSPENSION SYSTEM

John Cupolo, Bristol; David J. Salisbury, Barrington, and Charles W. Ouellette, Portsmouth, all of R.I., assignors to Raytheon Company, Lexington, Mass.

Continuation of Ser. No. 63,626, Aug. 3, 1979, abandoned, which is a division of Ser. No. 939,562, Sep. 5, 1978, Pat. No. 4,186,370. This application Mar. 30, 1981, Ser. No. 249,264

Int. Cl.³ B63B *21/52*

U.S. Cl. 441—22 **8 Claims**



1. A stabilized suspension system for suspending an object within a fluid medium and for maintaining said object in a substantially vertical orientation within such medium, said suspension system comprising:

cable means extending through an open chamber of said object and affixed to said object at a point of said chamber opposite an opening of said chamber, said point being at substantially the longitudinal center of said object;

a set of symmetrically positioned fin means adjacent said opening and rigidly attached to said object;

the center of mass and the center of buoyancy of said object

being located away from said opening and below the point of affixation of said cable means;

said fin means including a center of hydrodynamic pressure of said fluid medium on said object substantially at said point of said chamber to which said cable is affixed to maintain said object in the substantially vertical orientation within said medium irrespective of relative motion of said fluid transverse to the longitudinal axis of said object.

4,383,832

PROCESS FOR THE PREPARATION OF NEW ORGAN TRANSPLANTS

Wolfgang Fraefel, Grolley; Heinz F. Lichti, Richen, and Massimo Brunetti, Birsfelden, all of Switzerland, assignors to Solco Basel AG, Basel, Switzerland

Continuation-in-part of Ser. No. 248,782, Mar. 30, 1981, abandoned. This application Jul. 1, 1982, Ser. No. 394,079

Claims priority, application Switzerland, Mar. 31, 1980, 2529/80

Int. Cl.³ A01N *1/00*; A61F *1/22*

U.S. Cl. 8—94.11 12 Claims

1. A process for the preparation of new organ transplants from organs and parts of organs of fish, birds and mammals, which comprises subjecting said organs and parts of organs to crosslinking between the peptide chains of the intercellular matrix and a crosslinking agent selected from the group of dicarboxylic, tricarboxylic and polycarboxylic acids of the aliphatic, cycloaliphatic, aromatic and heterocyclic series, said crosslinking being effected by formation of amide bonds and ester bonds between the amino groups and the alcoholic hydroxyl groups, respectively, of said peptide chains, and the carboxylic groups of said crosslinking agent.

4,383,833

NATURAL EDIBLE DYE PREPARATION FROM BEAN HUSKS GIVING RED SHADES

Paul Hoffmann, Holzminden, Fed. Rep. of Germany, assignor to Dragoco Gerberding und Co. GmbH, Holzminden, Fed. Rep. of Germany

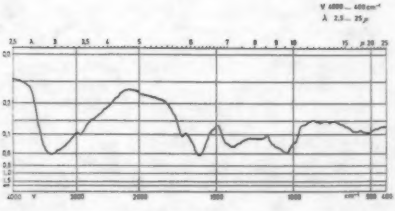
PCT No. PCT/DE81/00089, § 371 Date Feb. 19, 1982, § 102(e) Date Feb. 19, 1982, PCT Pub. No. WO82/00035, PCT Pub. Date Jan. 7, 1982

PCT Filed Jun. 11, 1981, Ser. No. 355,758

Claims priority, application Fed. Rep. of Germany, Jun. 20, 1980, 3023178

Int. Cl.³ C09B *61/00*

U.S. Cl. 8—438 11 Claims



1. A natural, edible dye, in particular for coloring foodstuffs and snack foods, beverages, and pharmaceutical and cosmetic products, characterized by the infrared spectrum according to FIG. 1 and the ultraviolet spectrum according to FIG. 2.

4,383,834

COLORING OF PAPER

Hans-Juergen Degen, Lorsch; Wolf Guender, Neustadt; Guenter Frey, Dannstadt-Schauernheim; Werner Streit, Bobenheim; Rolf Fikentscher, Ludwigshafen, and Klaus Wulz, Lambsheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Feb. 19, 1982, Ser. No. 350,143

Claims priority, application Fed. Rep. of Germany, Mar. 25, 1981, 3111712

Int. Cl.³ D21D *3/00*; D06P *1/46*; D21H *3/80, 3/82*

U.S. Cl. 8—551 6 Claims

1. A process for coloring paper with an acid dye or direct dye or mixtures thereof in an aqueous medium in the presence of a cationic assistant, wherein the cationic assistant employed is a water-soluble reaction product of an alkylating agent, possessing an aromatic substituent, with a cationic polyelectrolyte, containing aminoalkyl groups, selected from the group comprising polyethyleneimine,polyvinylamines and reaction products of ammonia or an amine and 1,2-dichloroethane, epichlorohydrin, dichlorohydrin or a chlorohydrin ether of a dihydric or polyhydric alchol, not less than 10% of the aminoalkyl groups of the cationic polyelectrolyte being reacted with the alkylating agent.

4,383,835

PROCESS FOR IMPROVING THE LIGHT FASTNESS OF POLYAMIDE DYEINGS WITH COPPER COMPLEXES OF SCHIFF BASES OR ORTHO-HYDROXY BENZOPHENONE

Reinhard Preuss, Krefeld; Joachim Grütze, Cologne; Ulrich Beck, Bornheim; Hellmuth Pantke, Leichlingen, and Karl Vogel, Cologne, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Oct. 15, 1981, Ser. No. 311,490

Claims priority, application Fed. Rep. of Germany, Oct. 31, 1980, 3041153

Int. Cl.³ D06P *1/64, 3/24*

U.S. Cl. 8—602 7 Claims

1. Process for improving the light fastness of polyamide dyeings, characterised in that polyamide fibre materials are treated, before, during or after dyeings with a metal complex dyestuff or an acid dyestuff with copper complexes of the reaction products of optionally substituted salicylaldehydes with alkylamines, aromatic diamines or hydrazine (I), and/or copper complexes of optionally substituted o-hydroxybenzophenones (II).

4,383,836

METHOD FOR TREATING AN AQUEOUS ETHANOL MIXTURE

James R. Wilson, Missouri City; Norman I. Anzarut, and Wheeler C. Crawford, both of Houston, all of Tex., assignors to Texaco Inc., White Plains, N.Y.

Filed May 23, 1980, Ser. No. 152,947

Int. Cl.³ C10L *1/02*

U.S. Cl. 44—56 1 Claim

1. A method for preparing a component of a gasohol fuel composition from a crude ethanol mixture containing from about 1 to 10 weight percent of water which comprises mixing said crude ethanol mixture with a hydrocarbon fraction comprising a substantial proportion of an aliphatic olefin having from 3 to 5 carbon atoms and a mixture of hydrocarbons in the gasoline boiling range to form an ethanol-hydrocarbon admixture, and contacting said ethanol-hydrocarbon admixture with an acidic ion exchange resin catalyst under effective olefin hydration conditions to convert a substantial proportion of said water to an oxygenated organic compound and form an upgraded ethanol-hydrocarbon fraction admixture suitable for use in gasohol manufacture.

4,383,837

EFFICIENT METHANE PRODUCTION WITH METAL HYDRIDES

Robert H. Smith, Plano, Tex., assignor to Atlantic Richfield Company, Los Angeles, Calif.

Filed Dec. 28, 1979, Ser. No. 108,203

Int. Cl.³ C07C *1/04*; C10L *3/00*

U.S. Cl. 48—197 R 10 Claims

1. A process for producing methane from a feed gas comprised of H_2, CO and N_2, said process comprising.

(a) removing CO from said feed gas to produce a first H_2-rich gas;

(b) dividing the CO separated in step (a) into a first and a second CO-rich gas;

(c) reacting said first CO-rich gas produced in step (b) with H_2O in a water-gas shift conversion zone to produce a gas rich in CO_2 and H_2;

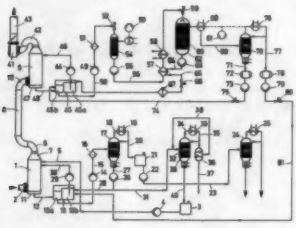
(d) removing CO_2 from the gas produced by step (b) to produce a second H_2-rich gas;
(e) passing said second H_2-rich gas to a methane forming reaction gas;
(f) reacting H_2 in said first H_2-rich gas produced in step (a) with a solid material comprised of at least one active metal to form a hydride thereby producing spent waste gas rich in N_2;
(g) decomposing hydride produced in step (f) to form a third H_2-rich gas;
(h) passing said second CO-rich gas produced in step (b) to said methane forming reaction gas;
(i) passing at least a portion of said third H_2-rich gas to said methane forming reaction zone, and
(j) reacting said gases passed to said methane forming reaction zone to produce methane.

4,383,838

PROCESS AND APPARATUS FOR CLEANING SOLVENT-CONTAINING EXHAUST AIR

Ernst-Heinrich Barten, Listertalstrasse 73, D-5952 Attendorn 13, and Gunther Lukaschek, Dirkenshof 6a, D-2105 Seevetal 2, both of Fed. Rep. of Germany

Filed Dec. 17, 1981, Ser. No. 331,879
Claims priority, application Fed. Rep. of Germany, Dec. 18, 1980, 3047658
Int. Cl.³ B01D *53/18*
U.S. Cl. 55—48 **8 Claims**



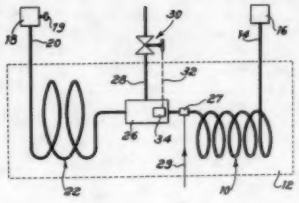
1. Process for the cleaning of solvent-containing exhaust air and recovery of the solvent in a two-stage scrubbing process, in which the first stage comprises
(a) scrubbing solvent-containing exhaust air in countercurrent with a first liquid scrubbing medium conducted in a closed cycle;
(b) separating solvent from the first scrubbing medium into separate liquid phases by distillation;
(c) recycling the thus-recovered first scrubbing medium to the scrubbing process; and
(d) discharging the solvent for reuse into collecting means; and in which the second stage comprises
(e) scrubbing the exhaust air discharged from the first stage and loaded with residual components of the first scrubbing medium in countercurrent with a second scrubbing medium conducted in a closed cycle, said second scrubbing medium having a low vapor pressure to avoid scrubbing medium losses during the scrubbing and exhausting of the cleaned exhaust air;
(f) degasifying the mixture of second scrubbing medium and residual first scrubbing medium;
(g) separating the first and second scrubbing media into separate liquid phases by distillation under vacuum; and
(h) recycling the first scrubbing medium to the scrubbing process of the first stage, and recycling the second scrubbing medium to the scrubbing process of the second stage.

4,383,839

METHOD AND DEVICE FOR VAPORIZATION INJECTION OF A LIQUID SAMPLE FOR GAS CHROMATOGRAPHIC ANALYSIS

Giorgio Sisti, Milan; Mario Galli, Legnano, both of Italy, and Sorin Trestianu, Brussels, Belgium, assignors to Carlo Erba Strumentazione S.p.A., Rodano, Italy

Filed Nov. 6, 1981, Ser. No. 318,907
Claims priority, application Italy, Nov. 6, 1980, 25818 A/80
Int. Cl.³ B01D *15/08*
U.S. Cl. 55—67 **10 Claims**



1. A device for effecting controlled vaporization injection of a liquid sample for gas chromatographic analysis, comprising:
a vaporization tube provided with temperature control means for maintaining an injected sample in the liquid state until injection is complete and then effecting controlled heating and vaporization of the sample, said tube being adapted to communicate at its upstream end, through a closable valve, with injection means, and at its downstream end, through sample splitting means, with a chromatographic column containing a stationary liquid phase for gas chromatographic separation of the vaporized sample exiting the vaporization tube;
injection means communicating through said valve with the upstream end of said vaporization tube, for direct injection of a liquid sample into an initial zone of said tube, and provided with valve means for closing off said injection means following injection of said sample into said tube; and
sample splitting means communicating with the downstream end of said vaporization tube and with the upstream end of said chromatographic column, for splitting said vaporized sample and diverting a portion thereof from said column, said splitting means being provided with valve means for controlling the splitting ratio.

4,383,840

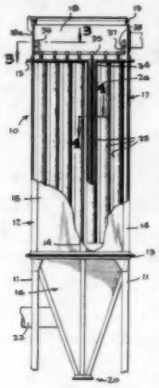
DUST COLLECTOR WITH TUBULAR BAG AND CAGE FILTERS AND BEATER RODS

Donald W. Jones, P.O. Box 1329, Sylacauga, Ala. 35150

Filed Oct. 28, 1981, Ser. No. 315,977
Int. Cl.³ B01D *46/04*
U.S. Cl. 55—283 **2 Claims**

1. In a plural bag dust collector filter apparatus for filtering air to remove dust and similar contaminants therefrom, the dust collector comprising a vertically elongated chamber subdivided by an apertured horizontal support plate into a lower dirty air plenum section and an upper clean air plenum section, a plurality of vertically elongated tubular cylindrical filter bags and respective associated shape-maintaining skeletal cylindrical wire cages inwardly lining the filter bags dependently supported from the supporting plate to extend therebelow along vertical axes, the filter bags and associated cages being arranged in plural longitudinal rows of filter bags whose axes lie in respective transversely spaced parallel vertical planes, the filter bags substantially spanning the height of the dirty air plenum section with the interiors of the filter bags and their cages opening upwardly through the apertures of said support plate in communication with said clean air plenum section, the

improvement comprising a vertical shake-down mechanism comprising a plurality of vertically elongated beater rods, each beater rod being located respectively within and depending substantially throughout the vertical height of a respective filter bag cage and its associated filter bag and extending above said support plate, said vertically elongated beater rods being resilient, elastically deformable, rubber-like vertically elongated rods normally extending substantially along the vertical center axis of its associated cage and filter bag and having a diameter which is a small fraction of the diameter of the associated cage and filter bag, elongated supporting bars for the beater rods for each respective row of filter bags having the upper end portions of the beater rods fastened thereto in de-



pendently supported relation, rotatable crank arms pivotally coupled to the opposite ends of the supporting bars and journaled for oscillatory rotary movement about horizontal axes within the clean air plenum section to reciprocate the supporting bars and their supported beater rods in horizontal directions to impact the beater rods carried thereby inwardly against their associated cages and develop sufficient force to dislodge dust build-up on the surfaces of the filter bags exposed to dust-laden air in the dirty air plenum section, and support bar drive means including power means coupled to said crank arms for reciprocating the crank arms and support bars to cause dust-dislodgement impacting of the beater rods against the filter bag cages.

4,383,841

DISTILLATIVE SEPARATION OF CARBON DIOXIDE FROM HYDROGEN SULFIDE

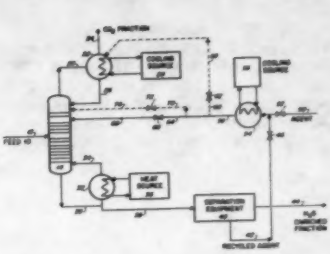
James M. Ryan, Weston, and Arthur S. Holmes, Shrewsbury, both of Mass., assignors to Koch Process Systems, Inc., Westboro, Mass.

Continuation of Ser. No. 143,099, Apr. 23, 1980, Pat. No. 4,293,322. This application Jul. 20, 1981, Ser. No. 284,957

Int. Cl.³ F25J *3/00*

U.S. Cl. 62—17 **10 Claims**

1. In a separation of carbon dioxide from hydrogen sulfide in a distillation column, the improvement of adding an agent for raising the relative volatility of carbon dioxide to hydrogen sulfide to said column at a point above the feed, said agent comprising a C_3–C_6 alkane, a mixture of C_3–C_6 alkanes, SO_2 or



SO_3, and wherein said agent comprises a liquid which is miscible in the liquid phase at all points in the distillation column.

4,383,842

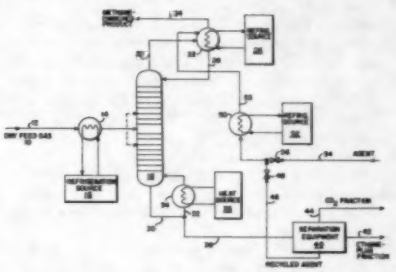
DISTILLATIVE SEPARATION OF METHANE AND CARBON DIOXIDE

John V. O'Brien, Shrewsbury, Mass., assignor to Koch Process Systems, Inc., Westborough, Mass.

Filed Oct. 1, 1981, Ser. No. 307,672

Int. Cl.³ F25J *3/00*

U.S. Cl. 62—20 **20 Claims**



1. A method of distillatively separating a feed stream containing methane and carbon dioxide into an overhead product enriched in methane and a bottoms product enriched in carbon dioxide, comprising:

(a) introducing said feed stream into a distillation column;

(b) providing sufficient heat to the bottom of said distillation column to provide a bottom product enriched in carbon dioxide with respect to methane and carbon dioxide in the feed stream;

(c) withdrawing an overhead stream from the top of said column;

(d) condensing at least a portion of said overhead stream for reflux in an overhead condenser at a temperature above the triple point of carbon dioxide and directing said condensed portion of overhead back to said column as reflux, said condensed portion being sufficient to provide a column overhead enriched in methane;

(e) introducing a liquid nonpolar agent miscible with methane into the condenser of said distillation in an amount of from about 2 to about 10 moles of agent per mole of methane in the feed stream and sufficient to maintain the temperature in the condenser and at all locations within the distillation column above the triple point of carbon dioxide;

(f) withdrawing that portion of overhead stream not employed as reflux as overhead product enriched in methane; and

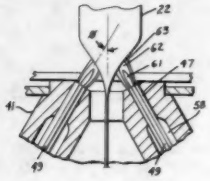
(g) withdrawing bottoms product enriched in carbon dioxide.

4,383,843

METHODS OF AND APPARATUS FOR HEATING A PREFORM FROM WHICH LIGHTGUIDE FIBER IS DRAWN

Rama Iyengar, Lilburn, Ga., assignor to Western Electric Company, Inc., New York, N.Y.

Filed Sep. 16, 1981, Ser. No. 302,933
Int. Cl.³ C03B 37/025
U.S. Cl. 65—2 20 Claims



1. A method of heating a glass preform from which lightguide fiber is drawn, said method including the steps of:

supporting the glass preform with its axis oriented vertically, the glass preform having a necked-down portion at its lower end;

directing a plurality of flames which are arrayed in a circle that circumscribes the preform toward a target surface of the necked-down portion at a predetermined angle to the axis of the preform to heat the preform, each of the flames including a precombustion zone, a combustion zone and a plume;

positioning the target surface and the flames to cause the target surface to be engaged about its periphery by the combustion zones of the flames; and

moving the glass preform downwardly at its lower end is heated while drawing lightguide fiber from the necked-down portion.

3. A method of heating a substantially cylindrical glass preform from which lightguide fiber is drawn, said method including the steps of:

supporting the glass preform with its axis oriented vertically, the glass preform having a necked-down portion at its lower end;

positioning a plurality of supply ducts about the necked-down portion of the preform with openings of the ducts being disposed in a circle that has a diameter which is less than the diameter of the preform and being disposed at a predetermined angle to the axis of the preform;

flowing gases through the ducts and causing them to produce a flame which impinges on the preform; and

moving the preform downwardly as its lower end is heated while drawing lightguide fiber from a lower end thereof.

4,383,844

OPTICAL FIBER FUSION SPLICING METHOD

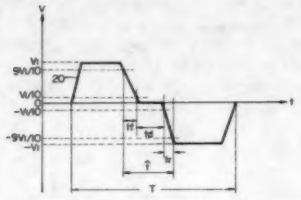
Norio Kashima, and Fumihiro Nihei, both of Mito, Japan, assignors to Nippon Telegraph & Telephone Public Corporation, Tokyo, Japan

Filed Aug. 3, 1981, Ser. No. 289,686
Claims priority, application Japan, Oct. 15, 1980, 55-142864
Int. Cl.³ C03B 23/20
U.S. Cl. 65—4.21 8 Claims

1. An optical fiber fusion splicing method comprising the steps of aligning optical fibers end-to-end, and fusing said aligned fibers to one another by heating the junction of said fibers by use of heat generated by a gas discharge between electrodes that are disposed adjacent the junction of said fibers and energized by an AC voltage, said electrodes being energized by the steps of:

applying across the electrodes a trigger voltage high enough to start the discharge; and

applying across the electrodes an AC voltage lower than the high trigger voltage to produce steady-state discharge



after occurrence of the discharge by the high trigger voltage, the AC voltage satisfying the relation $10t_0 \leqq (t_f + t_d + t_r)$ where t_0 is the time for ions created by the discharge to flow from one of the electrodes to the other and t_f, t_d and t_r are the fall time, the quiescent time and the rise time of the AC voltage.

4,383,845

FOLIAR GROWTH PROMOTING MIXTURE

Joseph P. Rutherford, 3203 Rocks Chrome Hill Rd., Jarrettsville, Md. 21084

Filed Jan. 15, 1982, Ser. No. 339,758
Int. Cl.³ C05F 1/00
U.S. Cl. 71—16 17 Claims

1. A foliar growth promoting mixture, including:

(a) a liquid seaweed base mixture forming approximately 50.0% by weight of said foliar growth promoting mixture;

(b) a fish emulsion mixture forming approximately 25.0% by weight of said foliar growth promoting mixture;

(c) a liquid humus mixture forming a predetermined weight percentage within the approximate range of 5.0%–15.0% by weight of the said foliar growth promoting mixture, said liquid humus mixture being a combination of peat humus and aqueous solution of ammonia; and,

(d) a water soluble nutrient mixture having a predetermined weight percentage within the approximate range of 10.0%–20.0% of said foliar growth promoting mixture, said soluble nutrient mixture from the group consisting of carbohydrates and enzymes.

4,383,846

STABILIZATION OF LIQUID FERTILIZER COMPOSITIONS

William S. Newsom, Jr., Lake City, Fla., assignor to Occidental Research Corporation, Irvine, Calif.

Filed Mar. 5, 1980, Ser. No. 127,293
Int. Cl.³ C05B 1/06, 7/00
U.S. Cl. 71—33 12 Claims

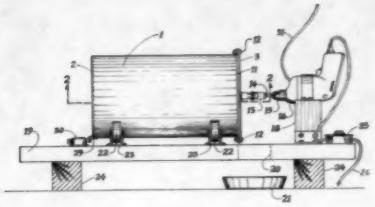
1. A process for retarding the growth of solids in a liquid fertilizer composition derived from wet process phosphoric acid, comprising the step of adding an amphoteric surfactant which can retard said growth of solids to the liquid fertilizer composition in an amount effective to retard said growth of solids and in which the amphoteric surfactant comprises a compound selected from the group consisting of imidazoline monocarboxylates, imidazoline dicarboxylates and betaines.

4,383,847

PRODUCTION OF FLUID FERTILIZER FROM PHOSPHORUS FURNACE WASTE STREAM

James C. Barber, Florence, Ala., assignor to James C. Barber and Associates, Inc., Florence, Ala.

Division of Ser. No. 223,122, Jan. 7, 1981. This application Sep. 11, 1981, Ser. No. 301,378
Int. Cl.³ C05B 11/10, 7/00
U.S. Cl. 71—34 2 Claims



1. A process for the production of fluid fertilizer comprising the steps of:

(a) smelting phosphatic minerals with coke and silica rock in a submerged arc electric furnace, wherein a phosphorus containing gas is evolved from the furnace;

(b) cleaning said gas in an electrostatic precipitator;

(c) condensing phosphorus from said gas by cooling of the gas by direct contact of the gas with water;

(d) continuously recirculating said water to the condensing step and bleeding off the water at the rate of about 5 gpm per 100 tons of phosphorus produced per day, such liquid containing ppm of elemental phosphorus of the order of 1700 ppm;

(e) subjecting the bled water from step (d) to a clarifier with about 98 percent of the feed liquid recovered as clarified overflow and about 2 percent recovered as underflow, with about 120 ppm of elemental phosphorus in the overflow;

(f) treating the clarifier overflow in a centrifuge to remove additional suspended phosphorus and obtain water with about 12 ppm of elemental phosphorus;

(g) adding the clarified and centrifuged water to fluid fertilizer processes for cooling or dissolution of fertilizer solids, wherein:

the step (g) adding the water to fluid fertilizer processes includes three stage ammoniation using three ammoniators in series, comprising the steps of:

(1) placing the clarified water from the centrifuge in the first two ammoniators, one of which is equipped with an evaporative cooler;

(2) adding phosphoric acid to the first stage ammoniator;

(3) adding a suspending clay to the third ammoniator; and

(4) agitating with ammonia in all three ammoniators, to produce as a product 13-38-0 orthophosphate base suspension fertilizer.

4,383,848

POLYSUBSTITUTED BUTANOIC ACIDS, ESTERS AND DERIVATIVES THEREOF UTILIZING THE SAME AS HERBICIDES

Stephen T. Szucs, Trenton, N.J., assignor to American Cyanamid Company, Stamford, Conn.

Division of Ser. No. 115,838, Jan. 28, 1980, Pat. No. 4,313,754, which is a division of Ser. No. 903,379, May 5, 1978, Pat. No. 4,224,052. This application Oct. 26, 1981, Ser. No. 314,593
Int. Cl.³ B21D 17/04, 121/78
U.S. Cl. 71—88 2 Claims

1. A method for the control of undesirable monocotyledonous and dicotyledonous plant species comprising applying to the foliage and stems of said plants or to soil containing seeds or other propagating organs of said plants, a herbicidally-effective amount of the compound erythro-threo-4-cyano-4-[3,4-(methylenedioxy)-phenyl]-3-phenylbutyric acid.

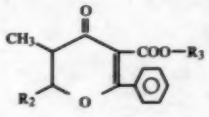
4,383,849

2,3-DIHYDRO-4-PYRONE DERIVATIVES, THEIR PREPARATION THE HERBICIDAL COMPOSITIONS IN WHICH THEY ARE PRESENT AND THEIR USE FOR SELECTIVELY DESTROYING WEEDS IN CROPS

Francois de Reinach Hirtzbach, and Guy Borrod, both of Lyons, France, assignors to Rhone-Poulenc Agrochimie, Lyons, France

Filed Oct. 28, 1981, Ser. No. 315,981
Claims priority, application France, Nov. 14, 1980, 80 24698
Int. Cl.³ A01N 43/16; C07D 309/22
U.S. Cl. 71—88 6 Claims

1. A 2,3-dihydro-3-methyl-6-phenyl-4-pyrone derivative essentially consisting of the cis isomer of the general formula:



wherein R_2 is ethyl, and R_3 is an alkyl radical having from 1 to 3 carbon atoms or propargyl.

6. A process for selectively destroying weeds in sunflower and cotton crops which comprises applying to the situs of these crops a herbicidally effective amount of a compound according to any one of claims 1, 2 or 3.

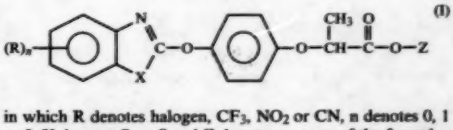
4,383,850

BENZTHIAZOLE OR BENZOXAZOLE ETHERS, HERBICIDAL COMPOSITIONS AND USE

Reinhard Handte, Hofheim am Taunus; Klaus Bauer, Rodgau, and Hermann Bieringer, Eppstein, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

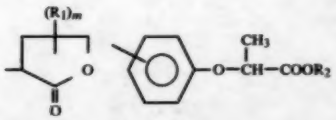
Filed Apr. 13, 1982, Ser. No. 367,882
Claims priority, application Fed. Rep. of Germany, Apr. 15, 1981, 3115152
Int. Cl.³ A01N 43/74; C07D 263/58, 277/68
U.S. Cl. 71—88 8 Claims

1. A compound of the formula I



(I)

in which R denotes halogen, CF_3, NO_2 or CN, n denotes 0, 1 or 2, X denotes O or S and Z denotes a group of the formulae



or $-C_pH_{2p}-R_3$, R_1 denotes (C_1–C_4)-alkyl or phenyl, m denotes 0–2, p denotes 1 or 2, R_2 denotes H, (C_1–C_4)-alkyl or a cation equivalent, and R_3 denotes a 3-membered to 7-membered heterocyclic ring system having up to three heteroatoms which is optionally monosubstituted or disubstituted by (C_1–C_4)-alkyl and/or contains oxo groups and which can also contain a fused benzene ring.

8. A process for combating undesirable grasses in crop plants, which comprises applying a herbicidally effective quantity of a compound of the formula I to the undesirable grasses or to their habitat.

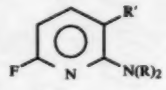
4,383,851

2-AMINO-6-FLUORONICOTINIC ACIDS AND DERIVATIVES THEREOF AND METHODS OF HERBICIDAL USE

Richard B. Rogers, Concord, Calif.; Jon S. Claus, Hanover, Va., and Eric A. Egli, Walnut Creek, Calif., assignors to The Dow Chemical Company, Midland, Mich.

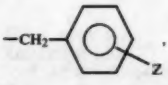
Filed Aug. 3, 1981, Ser. No. 289,432
Int. Cl.³ A01N *43/40*; C07D *213/55*
U.S. Cl. 71—94 **21 Claims**

1. A compound having the formula



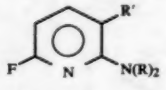
wherein R represents hydrogen or methyl; R′ represents

wherein X represents OR″, or OM;
R″ represents H, C_1–C_4 alkyl, alkoxyalkyl or



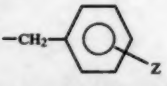
M represents alkali metal, ammonia, alkanol amine, or mono or dialkylamine and Z represents hydrogen, Cl, Br, F, CH_3, OCH_3 or CF_3 wherein each alkyl, alkoxy or alkanol group contains 1–4 carbon atoms.

8. An herbicidal composition comprising an inert carrier and an herbicidally effective amount of a compound having the formula



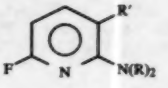
wherein R represents hydrogen or methyl; R′ represents

wherein X represents OR″, or OM;
R″ represents H, C_1–C_4 alkyl, alkoxyalkyl or



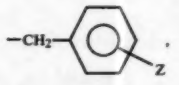
M represents alkali metal, ammonia, alkanol amine, or mono or dialkylamine and Z represents hydrogen, Cl, Br, F, CH_3, OCH_3 or CF_3 wherein each alkyl, alkoxy, or alkanol group contains 1–4 carbon atoms.

14. Method for selectively controlling wild oats in grassy crops such as wheat which comprises applying to said grassy crops, or to the soil in which said grassy crops are to be grown, an herbicidally effective amount of a compound having the formula



wherein R represents hydrogen or methyl; R′ represents

wherein X represents OR″, or OM;
R″ represents H, C_1–C_4 alkyl, alkoxyalkyl or



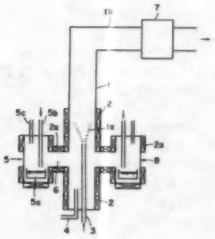
M represents alkali metal, ammonia, alkanol amine, or mono or dialkylamine and Z represents hydrogen, Cl, Br, F, CH_3, OCH_3 or CF_3 wherein each alkyl, alkoxy or alkanol group contains 1–4 carbon atoms.

4,383,852

PROCESS FOR PRODUCING FINE POWDERY METAL

Akinori Yoshizawa, Nakano Daini Koupo 1102, 24-16, Nakano 5-Chome, Nakano-Ku, Tokyo-To, Japan, assignor to Toho Aen Kabushiki Kaisha and Akinori Yoshizawa, both of Tokyo, Japan

Filed Mar. 4, 1982, Ser. No. 354,864
Claims priority, application Japan, Sep. 13, 1980, 55/127415
Int. Cl.³ B22F *9/12*
U.S. Cl. 75—0.5 B **10 Claims**



1. A process for producing fine powdery metal which comprises, in a generally elongated reaction tube at an elevated temperature,

causing a reducing gas stream to flow along the axis of the reaction tube, and

causing a mixture gas stream comprising a metal halide vapor and an inert carrier gas to flow in the same direction as but at a different velocity relative to the reducing gas stream so that the two streams contact each other in a laminar manner and form an unstable interface region therebetween,

whereby the metal halide vapor is reduced by the reducing gas to form fine metal particles in the unstable interface region.

4,383,853

CORROSION-RESISTANT FE-CR-URANIUM^{238} PELLET AND METHOD FOR MAKING THE SAME

Carl A. Zapffe, 6410 Murray Hill Rd., Baltimore, Md. 21212, assignor to William J. McCollough and Carl Zapffe, both of Brainerd, Minn.

Filed Feb. 18, 1981, Ser. No. 235,574
Int. Cl.^{3} C22C *1/04, 33/00, 43/00*; F42B *11/14*
U.S. Cl. 75—122.7 15 Claims

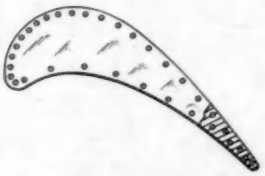
1. A solid, generally spherical, generally corrosion-resistant, iron-chromium-uranium metal pellet consisting essentially of a generally corrosion-resistant iron-chromium-uranium alloy which has been cooled from the molten state to below its solidification temperature quickly enough to prevent the formation of any segregated uranium-rich phase containing less than 10 atomic percent chromium, thereby forming a fine-grain alloy structure, said iron-chromium-uranium alloy having a specific gravity of at least about 8.4 and consisting essentially of about 3 to about 35 atomic-% uranium, about 10 to 35 atomic-% chromium the major amount of the alloy, by atomic-%, being iron, the uranium of said iron-chromium-uranium containing more than 99.3% of the U^{238} isotope.

4,383,854

METHOD OF CREATING A CONTROLLED INTERIOR SURFACE CONFIGURATION OF PASSAGES WITHIN A SUBSTRATE

Peter V. Dembowski, Richmond Heights, Ohio, and Peter W. Schilke, Scotia, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 29, 1980, Ser. No. 220,277
Int. Cl.^{3} B22F *5/00, 3/00*
U.S. Cl. 419—1 11 Claims



1. A method of creating a controlled surface configuration of passages within a substrate which comprises assembling said substrate and a leachable passage insert whose surface carries a female image of a desired passage surface configuration, hot isostatic pressing said substrate against said insert, and leaching said insert from said substrate to create the desired passage surface configuration in said substrate.

4,383,855

CERMETS AND METHOD FOR MAKING SAME

W. Scott Aaron, Clinton; Donald L. Kinser, Brentwood, and Thomas C. Quinby, Kingston, all of Tenn., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Apr. 1, 1981, Ser. No. 249,798
Int. Cl.^{3} B22F *9/16, 3/00*; C22C *43/00, 29/00*
U.S. Cl. 419—19 8 Claims

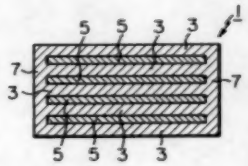
1. The method for fabricating a cermet comprising:
forming a particulate compact containing a plurality of metal oxides at least one of which is characterized by being more readily reducible to metal than at least one other metal oxide in the compact when the compact is exposed to an effective concentration of a reducing gas at elevated temperatures over a selected time period;
confining the compact in an environment containing a concentration of reducing gas;
heating the compact at less than the eutectic temperature of any of the metal oxides in the compact;
maintaining said temperature at less than said eutectic temperature until said at least one more readily reduced oxide is at a suboxide value having a melting temperature greater than said eutectic temperature and thereafter increasing the temperature to a level greater than said eutectic temperature and less than the melting temperature of said metal produced by the reduction of said at least one more readily reduced metal oxide; and
converting sufficient portions of the suboxide value to a liquid phase having sufficient fluidity to envelope particulate material remaining in said compact and maintaining the temperature at said increased level for continuing a reduction until the liquid phase solidifies to metal.

4,383,856

METHOD FOR MANUFACTURING MULTILAYER HEAD CORE

Tekeo Sata; Masayuki Takamura; Tomoo Yamagishi; Toshiharu Hoshi, and Kenzaburo Iijima, all of Hamamatsu, Japan, assignors to Nippon Gakki Seizo Kabushiki Kaisha, Shizuoka, Japan

Division of Ser. No. 894,607, Apr. 7, 1978, Pat. No. 4,242,711.
This application Nov. 15, 1979, Ser. No. 94,363
Claims priority, application Japan, Apr. 13, 1977, 52-42436
Int. Cl.^{3} B22F *5/00*
U.S. Cl. 419—6 9 Claims



1. A method for manufacturing a multilayer head core comprising:
preparing a compressed multilayer construction which includes a plurality of metallic powdery layers, a plurality of insulating layers superimposed with said metallic powdery layers in an alternate fashion and at least an interconnecting metallic powdery layer locally connecting said metallic powdery layers to each other, and
subjecting said compressed multilayer construction to sintering at a temperature sufficient to sinter said metallic powdery layer but insufficient to melt the same,
whereby said interconnecting metallic powdery layer adds mechanical strength to said construction and at least reduces cracking due to differential thermal expansion.

4,383,857

ATTACK POLISH FOR NICKEL-BASE ALLOYS AND STAINLESS STEELS

Arthur F. Steeves, and Donald P. Bucco, both of Schenectady, N.Y., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Division of Ser. No. 154,171, May 28, 1980, Pat. No. 4,305,779.
This application Jul. 6, 1981, Ser. No. 280,572
Int. Cl.^{3} C09G *1/00*
U.S. Cl. 106—3 5 Claims

1. A chemical attack polish for use in polishing metal surfaces consisting essentially of:
about 3 to 7 gms $Fe(NO_3)_3$,
about 15 to 40 cc CH_3COOH (concentrated),
about 3 to 7 cc H_2SO_4 (concentrated),

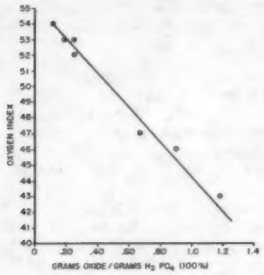
and H_2O in an amount sufficient to make about a 400 cc solution.

4,383,858

FIRE RETARDING ORGANOPHOSPHATE COMPOSITIONS

George M. Wagner, Lewiston, N.Y., assignor to Occidental Chemical Corporation, Niagara Falls, N.Y.

Filed Jan. 20, 1982, Ser. No. 340,924
Int. Cl.³ C09D 5/18
U.S. Cl. 106—18.14 20 Claims



1. A fire retarding composition for cellulosic material, comprising:

a reation mixture formed from aqueous phosphoric acid; and an alkylene oxide of 2 to 4 carbons, the weight ratio of oxide to acid being within the range of about 0.01:1 to about 0.25:1, such ratio based upon the weight of 100 percent phosphoric acid or equivalent thereof present.

4,383,859

INK JET INKS AND METHOD OF MAKING

Michael T. Moore, Longmont; John M. Olson, Boulder, and Donald A. Stremel, Northglenn, all of Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 18, 1981, Ser. No. 264,760
Int. Cl.³ C09D 11/02
U.S. Cl. 106—22 6 Claims

1. In a process for making water-based ink jet ink; the improvement comprising the sequential steps of:

(1) formulating a diluted water-based concentrate of the ink formulation which is essentially free of agents known to inhibit particle formation and growth;

(2) subjecting the concentrated ink to the operational stress of an elevated temperature of about 50° C. for a period of time sufficient to produce particle formation and growth;

(3) filtering the concentrated ink to remove said particles; and

(4) thereafter adding an aqueous vehicle a chelating agent and biocide to inhibit particle growth and formation from the final ink formulation.

4,383,860

PAPER PRINTING INK AND ITS USE

Albert Uhlemayr, Haag, and Heinrich Traitteur, Munich, both of Fed. Rep. of Germany, assignors to Michael Huber München GmbH, Kirchheim-Heimstetten, Fed. Rep. of Germany

Filed Jun. 16, 1981, Ser. No. 274,311
Claims priority, application Fed. Rep. of Germany, Jun. 20, 1980, 3023118
Int. Cl.³ C09D 11/06, 11/08, 11/10
U.S. Cl. 106—27 14 Claims

1. In a method for printing paper wherein ink is applied to paper using the offset printing process, the improvement which comprises said ink being composed of pigment, an alkyd resin binder, wherein the alkyd resin is non-drying and has a weight average molecular weight (M_w) of from 12,000 to 22,000 and is modified with oils, fatty acids or fatty alcohols with an iodine number less than about 20 and additional conventional additives.

4,383,861

METAL SILICO-PHOSPHATE BINDERS AND FOUNDRY SHAPES PRODUCED THEREFROM

Charles E. Seeney, Brazil; John F. Kraemer, and Janis Ingebrigtsen, both of Terre Haute, all of Ind., assignors to International Minerals & Chemical Corp., Terre Haute, Ind.

Filed Jan. 25, 1982, Ser. No. 342,312
Int. Cl.³ B28B 7/34
U.S. Cl. 106—38.3 18 Claims

1. A hydrogel binder composition for a foundry aggregate comprising, in admixture, a metal silico-phosphate selected from the group consisting of potassium olivine phosphate and zinc olivine phosphate and a hardener consisting of a mixture of aluminum dihydrogen phosphate, water and phosphoric acid.

13. A process for preparing foundry cores and molds, comprising the steps of (a) mixing an aggregate with a metal silicophosphate and a hardener consisting of water, phosphoric acid and aluminum dihydrogen phosphate, (b) packing the resulting mixture into a core or mold box and (c) allowing said mixture to stand a length of time sufficient to cure the binder and form the core or mold.

4,383,862

CONCRETE

John M. Dyson, Huddersfield, Great Britain, assignor to Domocon S.A., Chur, Switzerland

Filed Oct. 13, 1981, Ser. No. 310,940
Claims priority, application United Kingdom, Oct. 11, 1980, 8032915
Int. Cl.³ C04B 21/00
U.S. Cl. 106—88 7 Claims

1. A method for producing aerated concrete comprising the steps of:

(a) producing a mortar mix of water, sand, cement, a foaming agent and a silicate, said silicate being an active, colloidal silicate of magnesium, calcium, barium and/or aluminium prepared by precipitation from waterglass with a salt of the appropriate metal, and having a specific surface area in excess of 15 m^2/gm as measured by the BET method and which is in the form of a hydrogel or a xerogel;

(b) pumping said mortar mix at a predetermined rate to a substantially closed chamber located within blending means;

(c) feeding gas via gas pressure regulation means to said chamber, thereby obtaining in said blending means mortar mix and gas in predetermined proportions; and

(d) blending said mortar mix and gas within said chamber by the action of a rotary mixer located within the chamber to produce aerated concrete mix which, when set, has a compressive strength of from 15 to 35 N/mm^2.

4,383,863

2-[2-HYDROXY-3,5-DI-TERT-OCTYLPHENYL]-2H-BENZOTRIAZOLE IN STABILIZED PHOTOGRAPHIC COMPOSITIONS

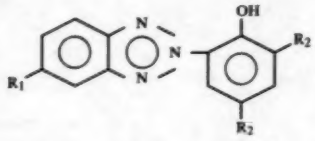
Martin Dexter, Briarcliff Manor, and Roland A. E. Winter, Armonk, both of N.Y., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation-in-part of Ser. No. 100,400, Dec. 17, 1979, Pat. No. 4,278,590, which is a continuation-in-part of Ser. No. 68,275, Aug. 20, 1979, Pat. No. 4,283,327, which is a continuation of Ser. No. 6,391, Jan. 25, 1979, abandoned. This application Mar. 6, 1981, Ser. No. 241,170

Int. Cl.³ C09H *11/00*

U.S. Cl. 106—125 9 Claims

1. An ultraviolet absorbing dispersion comprising a gelatin binder material and a hydrophobic compound selected from those having the formula:



wherein R_1 is hydrogen or chloro, and R_2 is tert-octyl.

4,383,864

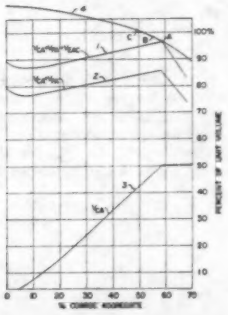
ADAPTIVE MIX PROPORTIONING METHOD FOR USE IN ASPHALTIC CONCRETE MIXING PLANTS

Jose A. Trujillo, Albuquerque, N. Mex., assignor to Riguez Associates, Albuquerque, N. Mex.

Division of Ser. No. 123,207, Feb. 21, 1980, Pat. No. 4,357,169, which is a continuation-in-part of Ser. No. 23,390, Mar. 23, 1979, Pat. No. 4,221,603, which is a continuation-in-part of Ser. No. 764,336, Jan. 29, 1977, abandoned. This application Sep. 19, 1980, Ser. No. 188,814

Int. Cl.³ C08L *95/00*

U.S. Cl. 106—281 R 5 Claims



1. A proportioning method for controlling an asphalt paving mixing plant having mix control means for proportioning respective quantities of coarse aggregate, fine aggregate, and asphalt cement and for producing an asphalt paving mixture which when compacted under standard compaction provides an asphalt pavement having a predetermined flexibility, stability, volume V_{EA} of air voids and percent of voids in mineral aggregate filled by said asphalt cement, said aggregates being variable in absorption, specific gravity, particle shape, size distribution, or consolidation under said standard compaction, said fine aggregate including crushed aggregate, which method comprises the steps of:

A. mixing a reference sample including said fine aggregate and a quantity of asphalt cement,

B. compacting said reference sample under said standard compaction,

C. determining an Index quantity that represents the quantity of the aggregate per unit volume of said reference sample compacted under said standard compaction,

D. selecting a proportion of coarse and fine aggregates according to said volumetric relationship:

$$V_{CA}+V_{FA}+V_{EA}+V_{EAC}=1 \text{ unit volume}$$

for differing proportions of coarse and fine aggregate, wherein the quantity of fine aggregates per unit of the combined volumes V_{FA} and V_{EAC} substantially equals said Index quantity, where V_{EAC} is the volume effective asphalt cement, V_{CA} is the volume of the coarse aggregate, and V_{FA} is the solid voidless volume of the fine aggregate,

E. adjusting said mix controls of the asphalt paving mixing plant to produce a mixture of the selected proportion as determined by step D,

F. adjusting the degree of crushing of crushed aggregate in said fine aggregate to attain said predetermined stability and flexibility value, and

G. periodically repeating steps A through F during the production of said asphalt paving mixture.

4,383,865

SOFT TEXTURED HIGH STRENGTH ALKALI BLUE PIGMENT

Doreswamy R. Iyengar, Holland, Mich., assignor to BASF Wyandotte Corporation, Wyandotte, Mich.

Filed Jun. 8, 1981, Ser. No. 271,594

Int. Cl.³ C04B *31/44;* C08J *3/02, 7/12*

U.S. Cl. 106—308 N 12 Claims

1. A process for preparing a soft textured high strength Alkali Blue pigment composition consisting of insolubilized amines and Alkali Blue pigments wherein the crude Alkali Blue produced by phenylation with aniline of parafuchsin, sulfonation primarily to mono with sulfuric acid and subsequent drowning in water, is dissolved in an aqueous solution of NaOH, which comprises mixing said solution first with (a) an alkaline solution of an alkyl aryl sulfonic acid and subsequently with (b) an acid solution of an amine containing from 3 to 36 carbon atoms and recovering said pigment composition.

4,383,866

METAL CONDENSED PHOSPHATE HARDENER COATED WITH REACTION PRODUCT FROM A METAL ALUMINATE AND/OR A METAL BORATE

Peter M. Nowakowski, Glenshaw; William G. Boberski, Gibsonia, and Jerome A. Seiner, Pittsburgh, all of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Division of Ser. No. 260,228, May 4, 1981. This application Aug. 11, 1982, Ser. No. 407,021

Int. Cl.³ C09C *3/06*

U.S. Cl. 106—308 B 8 Claims

1. A method of preparing a coated, metal condensed phosphate comprising:

(A) combining an aqueous slurry of metal condensed phosphate with

(B) an aqueous metallate selected from the group consisting of metal aluminate, metal borate and a mixture thereof, said metallate in an amount sufficient to provide a coating on said metal condensed phosphate of from about 0.1 percent to about 50 percent by weight based on the combined weight of said metal condensed phosphate and said coating, while maintaining the pH of said slurry in a range of from about 4 to about 10.

4,383,867

SOLVENT MIXTURE FOR REMOVING CURED POLYURETHANE COATINGS

John L. Elwell, Jr., Hooper, Utah, assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Continuation-in-part of Ser. No. 129,437, Mar. 11, 1980, abandoned. This application Jun. 30, 1981, Ser. No. 279,137

Int. Cl.³ C08K 5/02, 5/05, 5/20

U.S. Cl. 106—311 2 Claims

1. A solvent solution for effectively removing cured polyurethane resinous formulations from a substrate consisting of a mixture of about 70 volume percent dichloromethane, about 20 volume percent dimethyl formamide and about 10 volume percent methanol.

4,383,868

TREATMENT OF SPILLAGES OF HAZARDOUS CHEMICALS

Gordon K. Braley, 84 St Helens Rd., Rainford, Nr St. Helens, WA11 7QP, England

Continuation of Ser. No. 141,761, Apr. 21, 1980, abandoned. This application Jun. 4, 1981, Ser. No. 270,559

Claims priority, application United Kingdom, May 2, 1979, 7915227

Int. Cl.³ B08B 7/00

U.S. Cl. 134—7 11 Claims

1. A method of treating a spillage of a hazardous liquid chemical to immobilize the spillage thereby mitigating potentially harmful effects therefrom, which method comprises contacting the liquid chemical spillage with a solid particulate mixture consisting essentially of a first component of a polyacrylamide or a polyalkyl acrylamide and a second component of a polymer or copolymer of an alkyl(alk)acrylate.

4,383,869

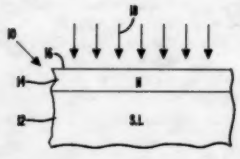
METHOD FOR ENHANCING ELECTRON MOBILITY IN GAAS

Shing-Gong Liu, Princeton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Jun. 15, 1981, Ser. No. 273,303

Int. Cl.³ H01L 21/265

U.S. Cl. 148—1.5 12 Claims



1. A method for enhancing electron mobility in a semi-insulating substrate, comprising:

implanting into said substrate high energy ions of a material which is inert in said substrate so as to form a surface layer in said substrate;

implanting donor ions into said surface layer; and

annealing said substrate.

4,383,870

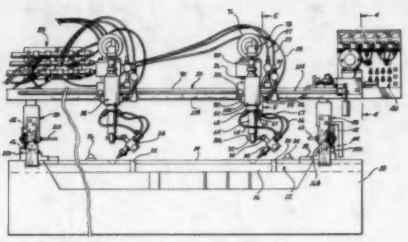
APPARATUS AND METHOD FOR CUTTING HOLES IN STEEL PLATES

Clyde W. Creech, 2243 W. South Mountain Ave., Phoenix, Ariz. 85041

Division of Ser. No. 113,471, Jan. 21, 1980, Pat. No. 4,330,110. This application Sep. 18, 1981, Ser. No. 303,538

Int. Cl.³ B23K 7/02, 7/10

U.S. Cl. 148—9 R 19 Claims



1. A method for cutting an aperture in a workpiece with a cutting torch, said method comprising the steps of:

(a) preheating the workpiece central to the aperture to be cut;

(b) initiating cutting of the aperture by the cutting torch at a point within the perimeter of the aperture and maintaining cutting of the aperture until the perimeter of the aperture has been cut;

(c) translating the cutting torch rectilinearly for a specified distance;

(d) rotating the cutting torch by advancing the cutting torch along a circular path and simultaneously maintaining the cutting torch in fixed orientation with respect to radials of the aperture to be cut during cutting along the perimeter of the aperture, said advancing step being initiated commensurate with initiation of said translating step;

(e) terminating said translating step when the cutting torch has been translated the specified distance; and

(f) continuing said rotating step until the perimeter of the aperture has been cut.

4,383,871

KNIVES FOR FOOD SLICING MACHINES

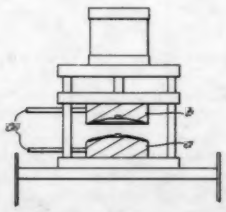
Barry Harding, Worksop; George W. Miles, and Barry J. Cowan, both of Sheffield, all of England, assignors to W.A. Tyzack & Company Limited, Yorkshire, England

Filed Oct. 23, 1980, Ser. No. 200,054

Claims priority, application United Kingdom, Oct. 26, 1979, 7937258

Int. Cl.³ C21D 8/02, 9/24

U.S. Cl. 148—12.4 7 Claims



1. A method of making a machine knife comprising providing a flat blank from steel strip or coil and performing at least an initial machining operation thereon, heating said blank to a

temperature conductive to press-forming, press-forming and through-hardening the heated blank, and imparting to the blank a stain-resisting uniform polished surface.

4,383,872

METHOD OF GROWING A DOPED III-V ALLOY LAYER BY MOLECULAR BEAM EPITAXY UTILIZING A SUPPLEMENTAL MOLECULAR BEAM OF LEAD

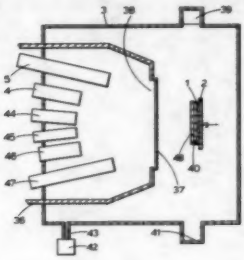
John S. Roberts, Horley, England, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 15, 1980, Ser. No. 216,339

Claims priority, application United Kingdom, Dec. 19, 1979, 7943742

Int. Cl.³ H01L *21/203, 21/363*

U.S. Cl. 148—175 4 Claims



1. A method of forming an epitaxial layer of a doped at least ternary III–V alloy on a semiconductor substrate, the method comprising the steps of placing the semiconductor substrate in a vacuum chamber, reducing the pressure in the vacuum chamber to below atmospheric pressure, maintaining the semiconductor substrate at a temperature in the range from 300° C. to 500° C., and forming the epitaxial layer by directing a plurality of molecular beams containing the constituent elements of the doped material constituting the epitaxial layer and by directing a molecular beam of lead all onto the heated substrate for a time sufficient to grow an epitaxial layer of a desired thickness, said molecular beam of lead forming from 5 to 20% of a monolayer of lead on the growth surface.

4,383,873

SENSITIVE LOW WATER EMULSION EXPLOSIVE COMPOSITIONS

Charles G. Wade, Lehighton, Pa., and Harold T. Fillman, Bowie, Md., assignors to Atlas Powder Company, Dallas, Tex.

Filed Oct. 27, 1980, Ser. No. 201,207

Int. Cl.³ C06B *45/00*

U.S. Cl. 149—2 23 Claims

1. A cap-sensitive water-in-oil explosive emulsion composition having a ½ cartridge gap sensitivity of at least about three inches formed from an emulsion matrix having from about 4% to less than 10% by weight water.

4,383,874

PYROTECHNIC COMPOSITION FOR DELAY ELEMENTS

Hans Schulte, Siegburg, and Christoph Voges, St. Augustin, both of Fed. Rep. of Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Fed. Rep. of Germany

Filed Feb. 27, 1981, Ser. No. 238,787

Claims priority, application Fed. Rep. of Germany, Mar. 1, 1980, 3008001

Int. Cl.³ C06B *45/02*

U.S. Cl. 149—21 9 Claims

1. In a pyrotechnical composition for a delay element comprising metallic antimony and potassium permanganate, the improvement wherein the weight ratio of antimony to potassium permanganate is (33–45):(55–65) and said composition contains 0.1 to 2.0 weight percent of a light metal selected from the group consisting of silicon, aluminum, magnesium and alloys containing at least one of said silicon, aluminum and magnesium.

4,383,875

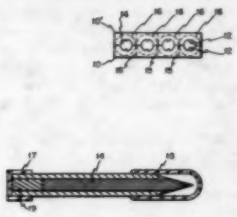
METHOD FOR MAKING COSMETIC PENCILS

Julio G. Russ, Germantown, and Donna L. Barrom, Arlington, both of Tenn., assignors to Plough, Inc., Memphis, Tenn.

Filed Aug. 26, 1981, Ser. No. 296,386

Int. Cl.³ B65B *7/28;* A61K *7/025, 7/032*

U.S. Cl. 156—69 8 Claims



1. A method for forming a cosmetic pencil having a lead of solvent-based cosmetic composition comprising at least one wax or resin, solvent for the wax or resin, and pigment comprising the steps of:

(a) packaging said lead in an airtight container and storing the packaged lead in surroundings having temperature no higher than 0° C. for 12 to 168 hours, thereafter

(b) storing the package lead in room-temperature surroudings for at least two hours, thereafter

(c) removing said lead from said airtight container,

(d) providing a pair of slats having grooved surfaces, said grooves upon joining of said surfaces forming a channel having inside dimension slightly larger than an outside dimension of said lead,

(e) forming an assembly by inserting said lead into a groove, and attaching said grooved surfaces to each other by adhesive bonding such that said lead is in said channel, and thereafter

(f) wrapping said assembly with airtight wrapping such that said wrapping covers at least a portion of the outer surface of said assembly.

4,383,876

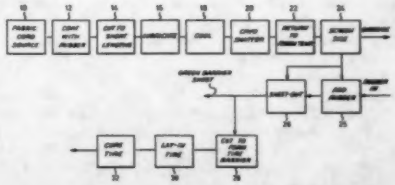
BARRIER SHEET AND METHOD OF MANUFACTURING SAME

John S. Shackleton, Baltimore, Canada, assignor to United Tire and Rubber Co. Limited, Rexdale, Canada

Continuation-in-part of Ser. No. 273,000, Jun. 12, 1981, abandoned. This application Aug. 24, 1981, Ser. No. 295,323

Int. Cl.³ B29D *3/02;* B60C *9/18;* B02C *11/08*

U.S. Cl. 156—110 R 16 Claims



1. A method of forming a barrier sheet suitable for use in the

manufacture of cured rubber products, such as tires, belts and the like comprising the steps of:

(a) coating elongated reinforcement cords with uncured rubber;

(b) cutting the coated reinforcement cords to form short lengths suitable for subsequent cryogenic shattering;

(c) lubricating the short lengths to prevent balling thereof;

(d) cooling the short lengths to a temperature suitable to permit cryogenic shattering;

(e) shattering the cooled short lengths to form fine particles;

(f) permitting the fine particles to return to a temperature suitable for sheeting-out;

(g) sheeting-out the fine particles to form a sheet of green barrier material.

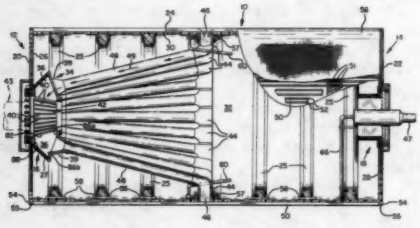
13. In a method of manufacturing a tire the improvement wherein a green barrier sheet is formed by coating elongated fibre cords with uncured rubber, cutting the coated rubber cords into short lengths suitable for subsequent cryogenic shattering, lubricating the short lengths to prevent balling, cryogenically shattering the cooled short lengths to form a fine particulate material, permitting the fine particle material to return to a temperature suitable for sheeting-out, sheeting-out the fine particle material to form a sheet of green barrier material, cutting said sheet of green barrier material to form a tire barrier sheet, laying-in said tire barrier sheet in a tire during construction of a tire and curing the tire thus formed to bond the tire barrier sheet in place within the tire.

4,383,877

METHOD OF MAKING AN ANNULAR VALVE HOUSING FOR A ROTARY DRUM FILTER

Richard W. LaValley, Vancouver, Wash., assignor to LaValley Industrial Plastics, Inc., Vancouver, Wash.

Filed Feb. 4, 1981, Ser. No. 231,236
Int. Cl.³ B32B *31/14*
U.S. Cl. 156—155 **14 Claims**



1. A method of making an axial annular valve housing for a rotary drum filter of the type having internal drainage conduits which deliver filtrate to the valve housing, the valve housing having a head end portion adjacent one end of the filter drum and a tail end portion and defining a central valve receiving space and plural individual valve chambers, each valve chamber having a filtrate inlet adapted for coupling to an associated one of the drainage conduits and a filtrate discharge outlet through which filtrate is discharged to the valve receiving space, such that the intermittent application of a vacuum at the filtrate discharge outlet of each valve chamber in response to a valve member positioned within the valve receiving space draws filtrate from the associated drainage conduit, through the valve chamber and filtrate discharge outlet and to the valve receiving space, comprising:

positioning radial plastic valve chamber side wall members about the axis of the valve receiving space such that the radially inward edges of said side wall members define the limits of the valve receiving space and such that said side wall members define the circumferential limits of the valve chambers;

placing plural individual dissolvable filtrate inlet defining molds in position such that each such mold is associated with a respective one of the valve chambers and is located in the space reserved for the filtrate inlet opening of the associated valve chamber;

applying a layer of plastic to the filtrate inlet defining molds and to span selected marginal edges of said side wall members so as to interconnect said side wall members and form the outer shell of the annular valve housing; and

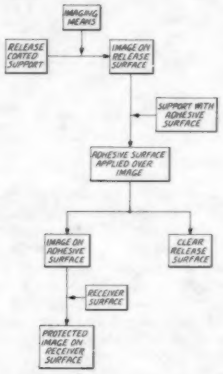
dissolving the filtrate inlet defining molds.

4,383,878

TRANSFER PROCESS

Chung-I Young, Roseville, and Brian H. Williams, White Bear Lake, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed May 20, 1980, Ser. No. 151,643
Int. Cl.³ B44C *3/02*
U.S. Cl. 156—235 **23 Claims**



1. An image transfer process for transferring an image from a release surface onto a different surface comprising the steps of

(a) applying an image to a release coated surface of a first support, said release coating being a radiation curable composition for providing solvent-resistant adhesive coatings comprising:

a polyfluorinated monomeric acrylate compound;

a polyethylenically unsaturated crosslinking agent; and

a film-forming polymer; which is radiation cured after it is coated on said first support base;

(b) adhering an adhesive surface of an adhesive coated second support base over said image on said release coated surface of said first support base;

(c) applying sufficient pressure to said second support base to effect intimate contact between said adhesive surface of said second support base and said image on said release coated surface of said first support base;

(d) separating said image bearing first support base from said second support base, with said image being transferred to said adhesive layer of said second support base; and

(e) securing said adhesive layer of said second support base, now bearing said image, onto a different receiver surface by the application of pressure to provide said receiver surface with a protected image;

wherein said second support base and said receiver surface may be transparent, translucent or opaque surfaces, provided that where said receiver surface is an opaque surface, said second support base is a transparent or translucent surface.

4,383,879
CEMENT FOR THE FIXATION OF OSSEOUS PROSTHESES

Antoine Le Du, Livry-Gargan; Frantz Langlais, Paris; Christian Michaud, Chelles, and Michel Postel, Paris, all of France, assignors to Commissariat a l'Energie Atomique, Paris, France

Filed Mar. 20, 1981, Ser. No. 245,709
Claims priority, application France, Mar. 24, 1980, 80 06479
Int. Cl.³ C08L 63/02
U.S. Cl. 156—307.7 13 Claims

1. A cement for the fixation of osseous prostheses, obtained by hardening of a mixture comprising:

(a) at least one epoxide resin having a high reactivity and very low toxicity, consisting of a diepoxide of a glycidyl ether of bisphenol A;

(b) a reactive, non-toxic suppling resin consisting of a polybutadine having hydroxyl groups mainly at the ends of chains;

(c) a mineral filler in powder form;

(d) a hardener capable of reacting with said epoxide resin in order to provoke hardening thereof, and

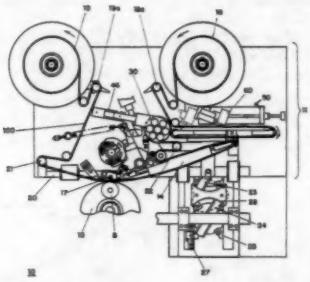
(e) a hardening accelerator;

the mixture comprising for 100 parts by weight of the mixture of epoxide resin and suppling resin, 50 to 85 parts by weight of mineral filler, 10 to 20 parts by weight of hardener and 5 to 10 parts by weight of hardening accelerator.

4,383,880
WEB TRANSPORT SYSTEM WITH ELECTRO-OPTICAL LABEL DETECTION

Friedrich H. H. Geurtsen, Holliston, Mass.; Waldemar S. Kebbel, Bremen, and Manfred Meyer, Stuhr, both of Fed. Rep. of Germany, assignors to Dennison Manufacturing Company, Framingham, Mass.

Filed Dec. 11, 1981, Ser. No. 329,834
Int. Cl.³ B32B 31/00
U.S. Cl. 156—361 10 Claims



1. An improved label transfer machine characterized by periodic operation within labelling cycles, of the type including a web bearing a plurality of labels, means for routing the web through a transport path past a transfer site, and means for transferring labels onto articles at the transfer site, wherein the improvement comprises means for controlling the transport of the web comprising:

electro-optical registration means for generating a timing signal in response to a predetermined optical contrast within the labels;

means for periodically generating an enabling signal at a first point with each labelling cycle;

means for periodically generating a disabling signal at a second point with each labelling cycle;

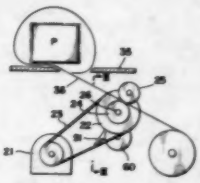
means for initiating web motion in response to a given disabling signal; and

means for halting web motion in response to a given timing signal, subsequent to an enabling signal but prior to the next disabling signal.

4,383,881
STRAPPING MACHINE

Yasunori Sakaki, Tokyo, Japan, assignaor to StraPack Shimojima Co., Ltd., Tokyo, Japan

Filed Sep. 17, 1981, Ser. No. 303,042
Int. Cl.³ B65S 13/32
U.S. Cl. 156—361 11 Claims



1. Apparatus for detecting the completion of a retracting and tightening process of a band in a strapping machine of the type which comprises means for feeding-out the band and for retracting the fed-out band including a drive roller; gripping means for gripping portions of the retracted band; and means for severing and fusing the fed end of the retracted band as it is gripped; drive means for driving said drive roller; and shut-off switch means which is actuated when said band has been fully retracted; the improvement wherein said drive means comprises:

a drive shaft operably connected to said drive roller;

a drive source;

a friction clutch mounted on said drive shaft for connecting said drive shaft with said drive source;

a fly wheel operably connected to said friction clutch to be rotated synchronously therewith, said fly wheel being arranged to continue to rotate under its own inertia after rotation of said friction clutch ceases upon retraction of said band;

a bearing member connected to said flywheel and enabling the axis of said flywheel to travel in response to continued rotation thereof, said bearing member being movable along with said axis of said fly wheel; and

a support member operably connected to said bearing member for movement therewith relative to said switch means to actuate the latter when rotation of said friction clutch ceases.

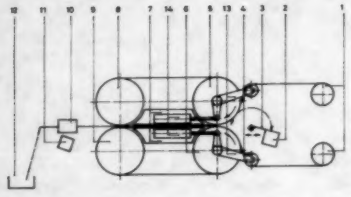
4,383,882
APPARATUS FOR SEALING INSERTS BETWEEN SHEETS OF PLASTIC MATERIAL

Kurt Held, Alte Strasse 1, D-7218 Trossingen 2, Fed. Rep. of Germany

Filed Jul. 23, 1981, Ser. No. 286,157
Claims priority, application Fed. Rep. of Germany, Jul. 24, 1980, 3028052
Int. Cl.³ B32B 31/08
U.S. Cl. 156—552 4 Claims

1. A device for the continuous sealing of inserts between sheets of plastics material for instance for sealing documents such as identification cards and the like, comprising a pair of press belts one positioned above the other and forming a double belt press so that the sheets of plastics material and the inserts located between them pass through the double press belt between the pair of press belts, each said press belt comprising an inlet roller, an outlet roller and a belt trained over said inlet and outlet rollers, said inlet rollers disposed in closely spaced relation and forming a gap between said belts trained over said inlet rollers, means located within said press belts between said inlet and outlet rollers for pressing said belts

together and for pressing the plastics material sheets arranged to pass between said press belts into sealing contact, means for feeding the plastics material sheets to the gap between said inlet rollers for passage between said press belts, said feeding means including a guide roller connected to each said inlet roller and a supply roller forming a source of the plastic material sheet, a feed device for supplying inserts from a source to the gap between said inlet rollers, and means located adjacent to and spaced outwardly from said outlet rollers for separating the sealed inserts from the sealed plastics material sheets after passage between said press belts, wherein the improvement comprises that said inlet rollers are heated, each said guide



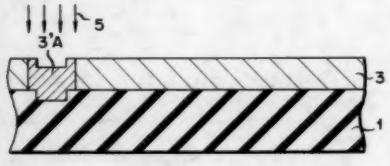
roller is mounted for pivotal movement about the axis of said inlet roller with which it is connected, means for pivotally displacing said guide rollers about the axes of said inlet rollers for selectively varying the contact of the plastics material sheets with said belts passing over said inlet rollers, said means for pivotally displacing comprising an arm pivotally connected at one end to the axis of rotation of said inlet roller and secured at the other end to said guide roller, said feed device comprises a vacuum feeder arranged to be synchronously controlled by the upper said press belt, and said means for separating the sealed inserts comprises a punch press, a stacking device, and a collector for waste strip of the plastics material sheets.

4,383,883

METHOD FOR FABRICATING SEMICONDUCTOR DEVICE

Yoshihisa Mizutani, Tokyo, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Aug. 4, 1981, Ser. No. 289,962
Claims priority, application Japan, Aug. 11, 1980, 55-110012
Int. Cl.³ C30B *1/02*
U.S. Cl. 156—603 **8 Claims**



1. A method for fabricating a semiconductor device comprising the steps of:

forming a groove on the surface of an insulator body;

forming a polycrystalline or amorphous semiconductor layer on the surface of said insulator body including said groove;

irradiating part of said semiconductor layer formed on said groove with an energy beam to convert said part into single crystals; and

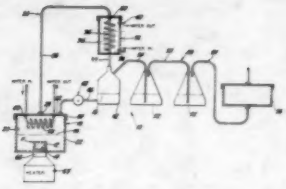
irradiating the remaining part of said semiconductor layer with said energy beam while displacing the energy beam to thereby sequentially form single crystals utilizing said single crystal semiconductor layer as a growing nucleus so as to form a continuous single crystal semiconductor on said insulator body.

4,383,884

CLOSED LOOP LEACHING SYSTEM

Walter J. Rozmus, Traverse City, Mich., assignor to Kelsey-Hayes Company, Romulus, Mich.

Filed Jun. 1, 1981, Ser. No. 268,878
Int. Cl.³ C23F *1/02*
U.S. Cl. 156—642 **20 Claims**



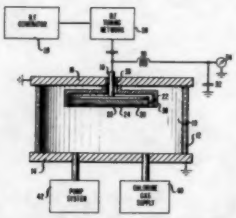
13. A method of dissolving a layer (12) from an article (11) by exposing the article (11) to a leaching solution (16) having a predetermined boiling temperature, said method comprising the steps of; placing the article (11) in an inner compartment (20) of a sealed reaction container (18) which contains the leaching solution (16); conducting and condensing boiled off leaching solution vapor in a recirculation system (25) and selectively returning the collected leaching solution (16) to the reaction container (18), and heating the article (18) to a temperature above the boiling temperature of the leaching solution (16) to increase the corrosion rate of the layer (12) of the article (11).

4,383,885

REACTIVE SPUTTER ETCHING OF POLYSILICON UTILIZING A CHLORINE ETCH GAS

Dan Maydan, Short Hills, and David N. Wang, Warren Township, Somerset County, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Continuation of Ser. No. 119,103, Feb. 6, 1980, abandoned. This application Sep. 8, 1981, Ser. No. 300,307
Int. Cl.³ H01L *21/308*
U.S. Cl. 156—643 **9 Claims**



1. A method for fabricating a microminiature device in accordance with a process sequence that includes at least one step in which a doped polycrystalline silicon layer of the device is to be anisotropically etched in a reactive sputter etching apparatus that comprises a plasma established between an anode electrode and a cathode electrode which holds the device to be etched, the plasma resulting from imposition of an electric field across a gaseous environment established between said electrodes, wherein the gaseous environment comprises essentially pure chlorine, wherein in said apparatus a chlorine pressure of approximately 2-to-50 microns is established and in which apparatus the power density at the surface of the member being etched is set at approximately 0.30-to-2 watts per square centimeter, wherein said doped polycrystal-

line silicon layer includes on the top surface thereof to be etched a patterned masking layer, and wherein in the etching apparatus the bottom surface of said device is maintained in direct electrical contact with said cathode electrode.

4,383,886

METHOD OF MANUFACTURING A SEMICONDUCTOR ELEMENT

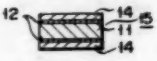
Kisaku Nakamura, Funabashi; Eiji Jimi, Yokohama; Haruyuki Goto, Yokosuka, and Akio Hori, Kawasaki, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Nov. 5, 1981, Ser. No. 318,416

Claims priority, application Japan, Nov. 14, 1980, 55-160233

Int. Cl.³ H01L 21/312; C23F 1/02

U.S. Cl. 156—659.1 **9 Claims**



1. A method of producing a semiconductor element, which comprises the steps of:

forming a first metal layer acting as an ohmic electrode by wet plating on each side of the element sections of a semiconductor wafer in which a plurality of active elements are formed or the whole surface of each side of said wafer;

selectively depositing by electroplating a single ply second metal layer which is anticorrosive and acts as a brazing material when a semiconductor element is mounted between a pair of electrodes, on each of the element areas in the first metal layers; and

chemically etching off those portions of the semiconductor wafer which are interposed between the active elements with the second metal layers used as masks to separate the thus produced elements from each other, thereby producing a plurality of semiconductor elements, each of which has its surfaces coated with the first and second metal layers.

4,383,887

PROCESS AND APPARATUS FOR THE CONCENTRATION OF AN ALKALINE SOLUTION

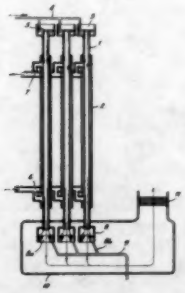
Hans Kühnlein, Füllinsdorf; Hans R. Küng, Frenkendorf, and Georg Molnar, Füllinsdorf, all of Switzerland, assignors to Bertrams AG, Basel, Switzerland

Filed Jul. 6, 1981, Ser. No. 280,481

Claims priority, application Switzerland, Jul. 11, 1980, 5327/80

Int. Cl.³ B01D 1/22

U.S. Cl. 159—13 A **12 Claims**



1. An apparatus for concentrating an alkaline solution which comprises:

at least one evaporator tube having an inner diameter, an internal surface, and upper and lower portion,

at least one evaporator tube,

means for introducting said alkaline solution to be concentrated into said upper portion of said evaporator tube so that a film of said alkaline solution falls along said internal surface of said evaporator tube,

heat exchange jacket means surrounding and spaced apart from said evaporator tube along its substantial length, said jacket means and evaporator tube defining an annular channel therebetween for receiving a heat exchange fluid,

a collecting trough operatively associated with said lower portion of said evaporator tube, having an inner diameter equal to or greater than said inner diameter of said evaporator tube whereby said collecting trough effectively separates concentrated liquid from vapor,

means for recovering said separated concentrated liquid from said collecting trough, and

vapor duct means for recovering said vapor separately from said concentrated liquid, said means for introducing said alkaline solution being sized and said inner diameter of said collecting trough and said inner diameter of said evaporator tube being sized, positioned and dimensioned to coact so as to prevent a remixing of said concentrated alkaline solution and said vapor after exiting from said evaporator tube.

4,383,888

PROCESS FOR CONCENTRATING RADIOACTIVE COMBUSTIBLE WASTE

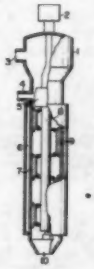
Koichi Chino, Hitachi; Hideo Yusa, Katsuta, and Kunio Kamiya, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 17,825, Mar. 5, 1979, abandoned. This application Apr. 21, 1980, Ser. No. 141,910

Claims priority, application Japan, Mar. 6, 1978, 53-24516

Int. Cl.³ B01D 1/22

U.S. Cl. 159—49 **9 Claims**



1. A process for concentrating radioactive combustible waste comprising:

providing a slurry of radioactive combustible waste comprising water and radioactive combustible waste;

mixing the slurry of radioactive combustible waste with a slurry of radioactive incombustible waste comprising water and radioactive incombustible waste to form a mixture of radioactive wastes containing 43–70% by weight of radioactive combustible waste as based on a dry mixture of radioactive combustible waste and radioactive incombustible waste;

feeding the mixture of radioactive wastes to a thin-film drier; and

evaporating the water and drying the mixture of radioactive wastes in the mixture of radioactive wastes therein, thereby concentrating the radioactive combustible waste to powder form.

4,383,889

PULP REFINING PROCESS AND ADDITIVE THEREFOR

James A. Hyde; Michael D. Breslin; David R. Cosper, all of Downers Grove, and Roy I. Kaplan, Naperville, all of Ill., assignors to Nalco Chemical Company, Oak Brook, Ill.

Filed Sep. 8, 1981, Ser. No. 300,110
Int. Cl.³ D21C 9/00
U.S. Cl. 162—26 6 Claims

1. A pulp stock refining process, comprising:

adding to bleached chemical pulp stock a sufficient amount of a blended additive comprising in combination at least one low molecular weight acrylic acid containing polymeric compound and at least one inorganic polyphosphate, wherein the weight proportion of said inorganic polyphosphate to said acrylic acid containing polymeric compound is from about 1:10::10:1, to reduce brightness loss during pulp stock refining; and

pulp stock refining said chemical pulp stock in the presence of said additive.

4,383,890

CERAMIC SHEET AND METHOD FOR PRODUCING THE SAME

Masayuki Oshima, Shinagawa, and Yasuhiko Matsui, Kure, both of Japan, assignors to Nittetsu Mining Co., Ltd. and Toyo Pulp Co., Ltd., both of Tokyo, Japan

Filed Mar. 2, 1981, Ser. No. 239,480
Claims priority, application Japan, Mar. 18, 1980, 55-33420
Int. Cl.³ D21H 5/12
U.S. Cl. 162—157.6 11 Claims

1. A method for producing a ceramic sheet comprising the steps of:

preparing a cation-modified cellulose pulp having a degree of substitution of cationic group of 0.02 to 0.04;

beating said cation-modified pulp to a freeness of 200 to 100 ml C.S.F;

mixing said cation-modified pulp thus beaten with fine inorganic particles in the presence of water to form an aqueous suspension, the ratio of said cation-modified pulp being from 5 to 50 wt.% (absolute dry weight) and that of said fine inorganic particles being from 50 to 95 wt.%; and

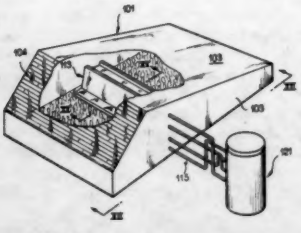
forming a ceramic sheet by subjecting said aqueous suspension to a paper-making treatment.

4,383,891

DEVICE FOR DESALTING BRACKISH WATER, AND A CONDITIONING METHOD AND DEVICE RELATING TO SAID DESALTING DEVICE

Philippe Clavier, Marly Le Roi, France, assignor to Spie-Batignolles, Puteau, France

Continuation-in-part of Ser. No. 70,498, Aug. 28, 1979, Pat. No. 4,292,136. This application Mar. 6, 1981, Ser. No. 241,034
Int. Cl.³ B01D 3/02
U.S. Cl. 202—234 12 Claims



1. Apparatus comprising means for decreasing the rate of temperature increase in an enclosed space while obtaining purified water from brackish water including:

wall means for defining an enclosed space;

optical means for intercepting solar energy impacting on a portion of said wall means and for focusing the intercepted solar energy in a focused region within the enclosed space so as to prevent uncontrolled heating of the enclosed space by the intercepted solar energy;

an enclosure totally encompassed within the enclosed space and containing brackish water, a portion of the brackish water lying in the focused region so that the energy of the intercepted solar energy is imparted to and heats the brackish water to cause evaporation therefrom;

heat extracting means within said enclosure for contacting and condensing evaporated water;

collecting means for collecting condensed water and for removing the condensed water from said enclosure; and

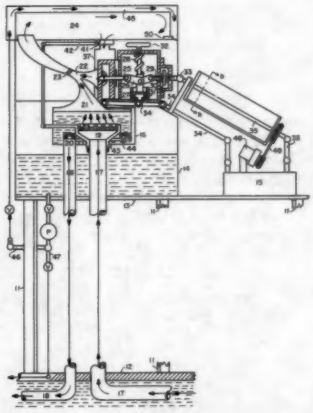
means for circulating coolant liquid from a source exterior of said enclosed space through said enclosure in heat exchange relationship with said heat extracting means and for discharging the coolant liquid to the exterior of the enclosed space so that the coolant liquid is heated during its passage through the enclosure to thereby enhance condensation of the evaporated water and remove the energy of the intercepted solar energy and transfer same to the exterior of the enclosed space.

4,383,892

SOLAR ASSIST FOR THE LIFTING, PURIFICATION AND STORAGE OF WATER

Edwin K. Woods, 1642 Edith Esplanade, Cape Coral, Fla. 33904

Continuation-in-part of Ser. No. 799,841, May 23, 1977, abandoned. This application Sep. 10, 1979, Ser. No. 83,731
Int. Cl.³ B01D 3/10
U.S. Cl. 203—11 2 Claims



1. A cyclic process for lifting, vaporizing and storing of water consisting of the use of high velocity vapors to create a low pressure area high over a body of poluted water, the height being such that the water raised due to the low pressure is completely vaporized when it arrives at that area and the vapors are steered to where they condense and become distilled water, while leaving behind water at a slightly lower level that was become more poluted because of the vaporization and returning that water to the original body of water, part of the distilled water is confined and superheated until it's internal pressure forces it's release at high velocity recreating the low pressure area, thus restarting the cycle, surplus distilled water is stored.

4,383,893
DISTILLATIVE SEPARATION OF LIQUID MIXTURES CONTAINING ALIPHATIC ALCOHOLS

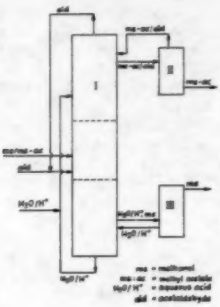
Gerd Kaibel, Lampertheim; Horst Hartmann, Boehl-Iggelheim; Waldheim Hochstein, Freinsheim, and Franz-Josef Mueller, Wachenheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Apr. 20, 1981, Ser. No. 255,429

Claims priority, application Fed. Rep. of Germany, May 23, 1980, 3019766

Int. Cl.³ B01D *3/34*

U.S. Cl. 203—35 6 Claims



1. A process for the distillative separation in a fractionating column of a liquid mixture containing at least one aliphatic alcohol into a higher-boiling alcohol-containing fraction and a lower-boiling fraction of the other liquids, which process comprises:

contacting the alcohol in a middle zone of the column with a C_2- to C_5-alkanal and with a non-volatile or only slightly volatile acid;

maintaining said middle zone of the column under conditions of temperature and pressure sufficient to cause a transient bonding of the alcohol to the alkanal in the presence of said acid so as to form a higher boiling acetal or hemiacetal;

heating the column such that substances more volatile than the alcohol pass into the upper zone of the column for removal therefrom as a top product;

cleaving said acetal or hemiacetal in the lower zone of the column into its respective alcohol and alkanal components; and

separating the alcohol from the bottom product of the column.

4,383,894
REMOVAL OF ORGANIC IODINE COMPOUNDS FROM ACETALDEHYDE

Horst Hartmann, Boehl-Iggelheim; Waldheim Hochstein, Freinsheim; Gerd Kaibel, Lampertheim, and Franz-Josef Mueller, Wachenheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Oct. 29, 1981, Ser. No. 316,301

Claims priority, application Fed. Rep. of Germany, Nov. 29, 1980, 3045105

Int. Cl.³ B01D *3/36*

U.S. Cl. 203—70 6 Claims

3. A process for removing organic iodine compounds from acetaldehyde obtained as an homologization mixture of methanol which, in addition to acetaldehyde as the desired product and methyl iodide as the main impurity, essentially contains acetaldehyde dimethyl acetal, methanol, methyl acetate and water, which process comprises:

(a) introducing the homologization mixture into the middle section of a column I at a temperature sufficient to completely vaporize the methyl acetate or its azeotropic mixture with methanol, but not the methanol,

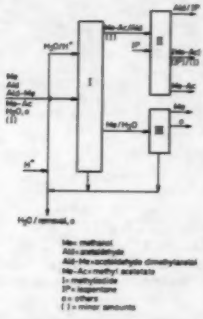
(b_1) feeding liquid aqueous acid, in counter-current to the rising vapors, into the top quarter of column I in order to split the acetaldehyde dimethyl acetal into acetaldehyde and methanol, or

(b_2) instead of the aqueous acid, using only water and splitting the acetal by means of a solid acid ion exchanger,

(c) taking off a vaporous mixture of methyl acetate and acetaldehyde at the top of column I and separating it into its components in a column II,

(d) taking off a liquid mixture of methanol and water from the bottom quarter of column I and separating it into its components in a column III, and

(e) removing some of the aqueous acid (embodiment b_1) obtained in the bottom of column I or removing some of



the water (embodiment b_2) from the system with minor amounts of other products, and combining the remainder of this aqueous acid or of the water with the water obtained in the bottom of column III, and recycling the aqueous solution into the top quarter of column I, after addition of an acid, the separation of methyl acetate and acetaldehyde in process step (c) being carried out in the presence of a hydrocarbon with a boiling point, under atmospheric pressure, of from 25° to 55° C., and said column II being maintained under conditions of temperature and pressure sufficient for the acetaldehyde/hydrocarbon mixture to be taken off from the top of said column II, a fraction containing the iodine compound, methyl acetate and the hydrocarbon to be removed as a lateral take-off from said column II, and the methyl acetate fraction to be taken off as the bottom product from said column II.

4,383,895
PURIFICATION OF 1,4-BUTANEDIOL

Richard E. Ernst, Kennett Square, Pa., and Donald C. Paul, Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

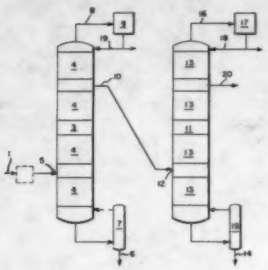
Continuation-in-part of Ser. No. 179,948, Aug. 21, 1980, abandoned. This application Sep. 21, 1981, Ser. No. 304,106

Int. Cl.³ B01D *3/10*

U.S. Cl. 203—77 2 Claims

1. A process for purifying 1,4-butanediol comprising feeding crude 1,4-butanediol into a distillation zone at the midpoint or below and at least three theoretical trays above the bottom of the zone, the distillation zone having a vacuum of less than 200 mm Hg and a temperature between 100° and 175° C., taking off an overhead stream containing water and low boilers, a bottom stream containing high boilers and a side stream containing 1,4-butanediol with a water content of less than 5000 ppm, the side stream being removed above the midpoint of the zone and at least two theoretical trays below the top of the zone, feeding side stream into the midpoint or lower of a second distillation

zone having a vacuum of less than 200 mm Hg and a temperature between 100° and 175° C., taking off a bottom stream containing high boilers, an overhead stream containing water and low boilers and at a point above the feed and at least two



theoretical trays from the top a product stream of 1,4-butanediol substantially free from color-forming materials to provide a product for use as a precursor in the preparation of polyesters having substantially reduced APHA color.

4,383,896

PROCESS OF ELECTROFORMING A SCREEN, MORE PARTICULARLY A CYLINDRICAL SCREEN

Wilhelmus A. Pruyn, Hoog-Keppel, and Anand Mohan, Warnsveld, both of Netherlands, assignors to Stork Screens B.V., Netherlands

Filed Apr. 15, 1981, Ser. No. 254,411

Claims priority, application Netherlands, Apr. 15, 1980, 80 02197

Int. Cl.³ C25D *1/08, 7/00*

U.S. Cl. 204—11 11 Claims

1. Process of electrolytically producing a screen by forming a metal screen skeleton upon a matrix in a first electrolytic bath, subsequently stripping the formed screen skeleton from the matrix and subjecting said screen skeleton to an electrolysis in a second electrolytic bath in the presence of at least one brightener, wherein a means is added to the second electrolytic bath comprising a class II brightener, whereby the growth of the metal deposit perpendicular to the surface of the screen skeleton preferentially occurs.

4,383,897

ELECTROCHEMICALLY TREATED METAL PLATES

Thomas N. Gillich, Whitehouse Station; John E. Walls, Annandale; Stanley F. Wanat, Scotch Plains, and William J. Rozell, Martinsville, all of N.J., assignors to American Hoechst Corporation, Somerville, N.J.

Continuation-in-part of Ser. No. 188,091, Sep. 26, 1980, abandoned. This application Mar. 18, 1982, Ser. No. 359,459

Int. Cl.³ C25D *11/08, 11/10, 11/16, 11/18*

U.S. Cl. 204—33 14 Claims

1. A process for coating a metal comprising

a. cleaning a metal article,

b. electrolyzing said metal article made anodic using pulsed direct current in an aqueous electrolytic solution having dissolved therein a mixture of electrolytes comprising:

i. a water-soluble organic acid or mixture of two or more water-soluble organic acids selected from the group consisting of sulfonic, organo-phosphoric, phosphonic and polymeric carboxylic acids, and

ii. a strong inorganic acid comprising a phosphorous OXO acid having POH groups in which the hydrogen atom is ionizable under electrolytic conditions, sufficient to form a metal-organic complex, including said organic acid, bonded to the surface of said metal article.

4,383,898

DE-WATERING OF METAL SURFACES

Stanley Renton, Penkridge, England, assignor to Albright & Wilson Limited, Warley, England

Continuation of Ser. No. 45,754, Jun. 5, 1979, abandoned. This application Mar. 26, 1981, Ser. No. 247,809

Claims priority, application United Kingdom, Jun. 7, 1978, 26440/78; Aug. 18, 1978, 33917/78

Int. Cl.³ C25D *5/48;* B05D *3/10;* C23F *1/00*

U.S. Cl. 204—35 R 14 Claims

1. In the method of treating articles which consists essentially of subjecting the article to an aqueous metal finishing treatment which includes at least one operation selected from the electrodeposition of metal on said article, the chemical deposition of metal on said article, the chemical removal of metal from said article, the electrochemical removal of metal from said article, and acid pickling, and which treatment provides a wet, free metal or metallic ion-containing surface, exposed to the environment and rinsing and drying said wet surface after the last step of said treatment, the improvement which consists of

(a) rinsing in water said wet, free metal or metallic ion-containing surface after said metal finishing treatment sufficiently essentially to remove any treatment solution capable of precipitating soap, then

(b) contacting said wet surface after step (a) with an aqueous solution containing at least 0.05 gram per liter of a water soluble soap, said soap being at least one salt of an aliphatic carboxylic acid having from 10 to 24 carbon atoms,

(c) rinsing said wet surface after step (b) with water, and then

(d) draining said wet surface to form a dry surface.

4,383,899

ELECTROCHEMICAL PRODUCTION OF VINYL ACETATE

James E. Kuder, Fanwood, N.J., assignor to Celanese Corporation, New York, N.Y.

Filed Sep. 1, 1982, Ser. No. 413,911

Int. Cl.³ C25B *3/02*

U.S. Cl. 204—59 R 9 Claims

1. In an electrolytic cell having anode and cathode chambers separated by a porous membrane, a working palladium metal anode, a counter electrode, an anolyte comprising glacial acetic acid and a soluble salt, and a catholyte; the operation of an electrochemical process which comprises introducing ethylene into contact with the anolyte and palladium anode, providing a direct current voltage in the cell and maintaining a constant anodic potential between about 0.4–1.8 volts, and recovering vinyl acetate product from the anode chamber.

4,383,900

APPARATUS AND METHOD FOR MEASURING THE IR DROP FREE CATHODIC PROTECTION POTENTIAL CREATED BY A RECTIFIER AND CONTROLLING RECTIFIER OPERATION TO ACHIEVE A DESIRED LEVEL THEREOF

John I. Garrett, Ogallala, Nebr., assignor to Good-All Electric Company, Inc., Ogallala, Nebr.

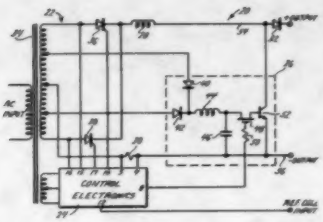
Filed Apr. 9, 1981, Ser. No. 252,576

Int. Cl.³ C23F *13/00*

U.S. Cl. 204—147 29 Claims

20. A method for measuring the IR drop free cathodic protection potential imposed on a structure by a rectifier at any

point in the rectifier output waveform comprising the steps of: filtering the rectifier output with an efficiency filter, electrically connecting the output lines of the rectifier and thereby forcing the voltage delivered to the structure to zero for a



period of time, continuously detecting for the minimum potential between said structure and a reference cell during the period of zero voltage, and storing said minimum detected potential.

4,383,901

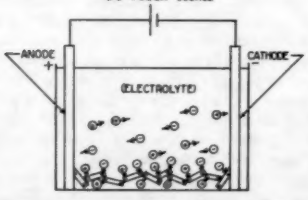
METHOD FOR REMOVING METAL IONS AND OTHER POLLUTANTS FROM AQUEOUS SOLUTIONS AND MOIST GASEOUS STREAMS

Avery B. Smith, 36 Surrey Dr., Wallingford, Conn. 06492, and Mark J. Hayes, Jeremiah Rd., Sandy Hook, Conn. 07732

Division of Sér. No. 764,255, Oct. 1, 1968, Pat. No. 4,310,406. This application Apr. 20, 1981, Ser. No. 255,361

Int. Cl.³ C02C *5/12*

U.S. Cl. 204—152 **5 Claims**



1. A method of removing contaminants from aqueous fluids electrochemically by electrolysis comprising the steps of

placing the fluid to be treated into a vessel containing a bed including solid particulate packing elements, some of which are in contact relation to form a media of low electrical conductivity;

said vessel also including a cathode and an anode in contact relation to some of said packing elements and in spaced relation to each other, said bed being continuous between said cathode and anode and forming therewith an electrically conductive path; and

activating a source of direct electrical current to said cathode and anode to induce a potential difference between said cathode and anode and through said elements therebetween.

4,383,902

PHOTOPOLYMERIZABLE POLYESTER RESINS, A PROCESS FOR THEIR PRODUCTION AND THEIR USE AS LACQUER BINDERS

Walter Frank; Otto Bendszus; Hans-Joachim Traenckner, and Hans-Joachim Freier, all of Krefeld, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Mar. 11, 1981, Ser. No. 242,445

Claims priority, application Fed. Rep. of Germany, Mar. 19, 1980, 3010428

Int. Cl.³ C08F *2/50*

U.S. Cl. 204—159.15 **9 Claims**

1. Photopolymerizable mixtures containing

(a) from 30 to 70 parts by weight of at least one α,β-ethylenically unsaturated polyester,

(b) from 30 to 70 parts by weight of at least one unsaturated monomer copolymerizable with (a),

(c) from 0.5 to 4.0 parts by weight of at least one photoinitiator and, optionally,

(d) other standard additives, characterised in that the polyester (a) contains at least 28% by weight of residues of α,β-ethylenically unsaturated dicarboxylic acids, from 30 to 50% by weight of polyalkylene glycol residues having an average molecular weight of from 300 to 600 and optionally up to 42% by weight of other alcohol or carboxylic acid residues, the percentage quoted being based in each case on polyester (a).

4,383,903

CURABLE RESIN COMPOSITION

Satoshi Ayano, Ninomiyamachi; Morio Gaku, Saitama; Nobuyuki Ikeguchi, Tokyo; Hidenori Kinbara, Tokyo, and Yasunari Osaki, Tokyo, all of Japan, assignors to Mitsubishi Gas Chemical Company, Inc., Tokyo, Japan

Filed Apr. 3, 1981, Ser. No. 250,897

Claims priority, application Japan, Apr. 8, 1980, 55-45882

Int. Cl.³ C08G *73/00, 73/112;* G03C *1/70, 1/68*

U.S. Cl. 204—159.16 **7 Claims**

1. A photo-curable resin composition comprising:

(i)(a) at least one cyanate ester compound selected from the group consisting of:

(1) a polyfunctional aromatic cyanate ester monomer having the formula:

$$R\text{-}(\text{-O-C}\equiv\text{N})_m$$

wherein m is 2 to 5 and R is an aromatic organic group, the cyanate groups being bonded to an aromatic ring of said aromatic organic group,

(2) a homoprepolymer of one or more cyanate esters of (1), and

(3) a coprepolymer of (1) and an amine;

(b) at least one compound selected from the group consisting of:

(1) a monomer having one to six olefinic double bonds selected from the group consisting of compounds represented by the formula:

$$R^1\text{-}(\text{-}\overset{O}{\overset{\|}{C}}\text{-}\overset{X}{\overset{|}{C}}\text{=}CH_2)_n$$

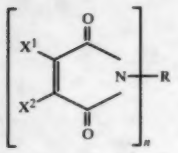
wherein R^1 is an organic group comprising a main chain or carbon ring, or a main chain or carbon ring which contains O or N or a combination of O and N, or a main chain or carbon ring which is substituted by a pendant hydroxy or halogen or a combination of hydroxy and halogen, provided that when R contains an aromatic group R^1 has 6–35 carbon atoms, and when R^1 contains no benzene ring R^1 has 1–15 carbon atoms, X is hydrogen or methyl, n is an integer of 1, 2, 3, 4, 5 or 6 and the valency of R^1 is the same as n,

(2) a homoprepolymer of one or more monomers of (1), and

(3) a liquid rubber of (1) or (2) having one to six acryloyl or methacryloyl groups; and

(c) at least one compound selected from the group consisting of:

(1) a polyfunctional maleimide represented by the following general formula



wherein R represents divalent to pentavalent aromatic or alicyclic organic group, each of X^1 and X^2 represents a hydrogen atom, halogen atom or alkyl group, and n represents an integer of 2–5,

(2) a homoprepolymer of one or more maleimides of (1), and

(3) a coprepolymer of (1) and an amine,

said composition including a mixture of components (a), (b) and (c), a preliminary reaction product of components (a), (b) and (c), the combination of said mixture and said preliminary reaction product, the combination of (a) and the preliminary reaction product of (b) and (c), the combination of (b) and the preliminary reaction product of (a) and (c), or the combination of (c) and the preliminary reaction product of (a) and (b);

(ii) a photo polymerization initiator or a photo sensitizer present in an amount of 0.01 to 10% by weight of combined weight of components (a), (b) and (c); and

(iii) a heat curable catalyst or a curing agent.

4,383,904

PHOTOCHEMICAL EPOXIDATION

James P. Shepherd, Union, N.J., assignor to Celanese Corporation, New York, N.Y.

Filed Sep. 21, 1981, Ser. No. 304,435
Int. Cl.³ C07C *3/24*
U.S. Cl. 204—162 R **12 Claims**

1. A process for the photochemical epoxidation of olefins which comprises oxidizing an alkene compound with molecular oxygen in liquid phase with irradiation in the presence of at least two 1,2-diketone photosensitizers which absorb light in a range between about 3700–4600 angstroms.

4,383,905

SYSTEM FOR HYDRODYNAMIC COMPENSATION FOR ELECTROPHORESIS CRESCENT DISTORTION

David W. Richman, St. Louis County, Mo., assignor to McDonnell Douglas Corporation, St. Louis, Mo.

Division of Ser. No. 178,833, Aug. 15, 1980, Pat. No. 4,309,268. This application Sep. 28, 1981, Ser. No. 306,510
Int. Cl.³ G01N *27/26, 27/40*
U.S. Cl. 204—180 R **5 Claims**

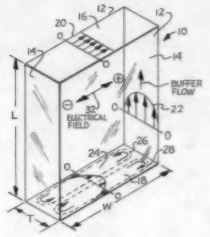
1. In an electrophoresis separation process conducted with an apparatus comprising:

a lengthwise elongate rectangular buffer filled separation chamber defined by two elongate spaced apart parallel plates forming a front and a back to the chamber, two sides, an end comprising a collection manifold having a plurality of spaced apart collection tubes, an end comprising a buffer solution inlet manifold assembly;

two buffer filled electrode chambers, each disposed adjacent to one of the sides of the chamber and separated therefrom by a porous membrane;

at least one sample inlet port located at or near the inlet of the chamber;

the improvement comprising controllably varying flow



within the apparatus laterally across the chamber such that crescent distortion for at least one of a plurality of individual components of a sample introduced through the sample inlet port is minimized.

4,383,906

DEVICE FOR SENSING OXYGEN CONCENTRATION IN AN EXHAUST GAS

Hiromi Sano, Nagoya, and Masatoshi Suzuki, Anjo, both of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Jul. 22, 1982, Ser. No. 401,027
Claims priority, application Japan, Jul. 27, 1981, 56-117406
Int. Cl.³ G01N *27/46*
U.S. Cl. 204—416 **10 Claims**

1. A device for sensing the oxygen concentration in an exhaust gas, comprising:

a cup-like oxygen-ion permeable cylindrical member made of solid electrolyte consisting of oxygen-ion conducting metal oxide, said cylindrical member having an inner circumferential surface communicating with the atmosphere and an outer circumferential surface communicating with the exhaust gas for producing an electromotive force corresponding to a difference between the oxygen concentrations on said inner circumferential surface and on said outer circumferential surface and having negative-resistance temperature characteristic;

a pair of first electrodes serving as a lean sensor and each comprising a thin film made of porous metal material, said first electrodes being provided on said inner circumferential surface and outer circumferential surface of said cylindrical member, respectively, in opposed relationship to each other;

an oxygen-gas diffusion limiting layer covering said lean sensing electrode on said outer circumferential surface of said cylindrical member;

a pair of second electrodes for sensing the oxygen concentration under high load drive mode and the temperature of said cylindrical member and each comprising a thin film made of porous metal material, said second electrodes being provided, respectively, on those portions of said inner and outer circumferential surfaces of said cylindrical member which are different from the portions where said first electrodes are provided in opposed relationship to each other; and

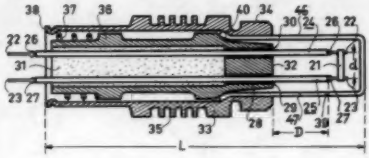
a heater disposed in said cylindrical member for heating said cylindrical member.

4,383,907

GAS-ANALYSIS PROBE

Jacques Legrand, and Jean C. Rouffy, both of Suresnes, France, assignors to Socapex, Suresnes, France

Filed Jul. 21, 1981, Ser. No. 285,523
Claims priority, application France, Jul. 22, 1980, 80 16122
Int. Cl.³ G01N *27/58*
U.S. Cl. 204—426 10 Claims



1. A gas-analysis probe comprising:

a gas sensor having two contact electrodes and an inner reference electrode for being entirely immersed in the gases to be analyzed;

a metal casing having an external side and an internal side and being provided with cooling fins on the external side and with a first shoulder at one end of the internal side and with a recess extending from said one end thereof toward the other end;

a hollow ceramic body within said metal casing, and having an external side and an internal side and a second shoulder on said external side, and at least two apertures at one end of said hollow ceramic body;

a spring bearing on said first and second shoulders and pushing said hollow ceramic body toward said other end of said casing;

at least two metal rods each brazed at one of their ends to one of said contact electrodes of said gas sensor for conducting the electric signal thereof and sheathed by two high-resistivity ceramic tubes in which they are secured, said ceramic tubes having the same diameter as the apertures so as to allow the positioning of said metal rods in said apertures;

a filling formed by hardenable liquid ceramic, for filling said recess of said ceramic body so as to secure said metal rods against movement, said metal rods being so positioned so that they extend beyond a second end of the hollow ceramic body.

4,383,908

PROBE SYSTEM FOR DETERMINING ACIDITY OF FLUID FLOWING THROUGH PRESSURIZED PIPE LINE

Thomas C. Phelps, Gaston, and Clifford J. Reese, Roanoke Rapids, both of N.C., assignors to Champion International Corporation, Stamford, Conn.

Continuation of Ser. No. 135,301, Mar. 31, 1980, abandoned, which is a continuation of Ser. No. 31,392, Apr. 19, 1979, Pat. No. 4,202,749. This application Sep. 22, 1981, Ser. No. 304,344
Int. Cl.³ G01N *27/36*
U.S. Cl. 204—409 3 Claims

1. A pH probe system having a pH probe adapted to be removably installed in-line within a pressurized pipe line to determine the pH of a fluid flowing through the pipe line, said system comprising:

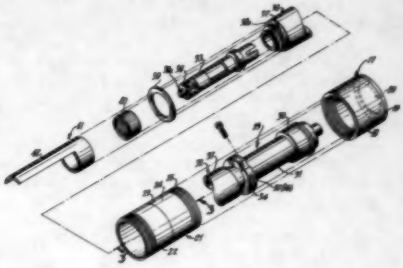
(a) a pipe assembly mounted on the pipe line for providing access to the interior of the pipe line;

(b) valve means for closing and opening said pipe assembly, said valve means being disposed medially of said pipe assembly;

(c) a sleeve mounted on an outer end of said pipe assembly, said sleeve having a bore opening into said pipe assembly;

(d) a pH probe assembly telescopingly mounted in said sleeve, said probe assembly extending through said sleeve bore and through said pipe assembly, said probe assembly being operable to convert the pH of the fluid flowing through the pipe line to an electrical signal representing the acidity of the fluid, and said probe assembly having a sensor head portion and a glass electrode disposed at an inner end of said sensor head portion within said pipe line;

(e) sealing means providing a fluid-tight seal between said probe assembly and said sleeve bore; and



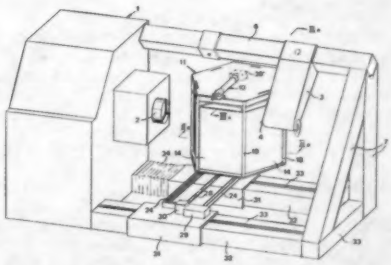
(f) a protector shield secured to said probe assembly, said protector shield including an elongated flange disposed outwardly spaced from and adjacent to said sensor head portion on the upstream side of said sensor head portion within said pipe line, said protector shield being operative to protect said sensor head portion and said electrode from dynamic fluid flow forces within said pipe line on the upstream side while allowing exposure of said sensor head portion and said electrode to the fluid in said pipe line on the downstream side.

4,383,909

PLATING APPARATUS

Göran Jonsson, Box 32, S-795 00, Rättvik, Sweden

PCT No. PCT/SE80/00235, § 371 Date Jun. 10, 1981, § 102(e) Date May 21, 1981, PCT Pub. No. WO81/01015, PCT Pub. Date Apr. 16, 1981
PCT Filed Oct. 1, 1980, Ser. No. 269,025
Claims priority, application Sweden, Oct. 10, 1979, 7908395
Int. Cl.³ C25D *17/00*
U.S. Cl. 204—212 9 Claims



1. An apparatus for plating workpieces by electrolytic treatment in a plurality of steps, comprising,

means to hold and rotate the workpiece,

a plurality of electrodes, at least one of which being adapted in each step to be located at the workpiece by means of an electrode holder, and

means to supply, in each step, a certain electrolyte to the region of the rotating workpiece and the non-rotating electrode, which during the treatment is connected to one

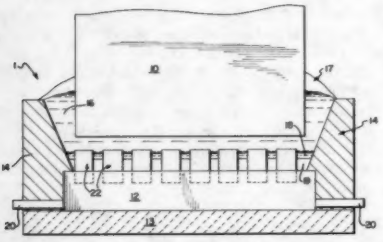
pole of a source of direct current, the other pole of which is connected to the workpiece, characterized in that a plurality of said electrode holders with associated ones of said electrodes are arranged on a common carrier, which is adjustably movable relative to said holding means and the rotatable workpiece to selectively locate an optional electrode holder with associated electrode(s) intended for the desired treatment step in an operative position relative to the rotatable workpiece, said holder and electrode(s) being adapted to remain on the carrier during the treatment step, and in that said carrier is provided with electrolyte containers in a number equal to the number of said electrode holders, each container being associated with means to supply electrolyte to the region of one of said electrode holders.

4,383,910

ALUMINA REDUCTION CELL

Nolan E. Richards, Florence, Ala., assignor to Reynolds Metals Company, Richmond, Va.

Filed May 21, 1981, Ser. No. 265,900
Int. Cl.³ C25C *3/08*; C25B *11/12*
U.S. Cl. 204—243 R **5 Claims**



1. In an alumina reduction cell having an anode, a carbonaceous cathode forming the floor of said cell and a plurality of refractory hard metal (RHM) shapes extending vertically upwardly from said cathode the improvement comprising a solid layer of a cryolite-alumina composite resting on said cell floor, said solid cryolite-alumina composite layer comprising between about 20–80% by weight cryolite and between about 20–80% by weight alumina, said RHM shapes passing through said solid cryolite-alumina composite layer.

4,383,911

PROCESS FOR DIRECT LIQUEFACTION OF COAL

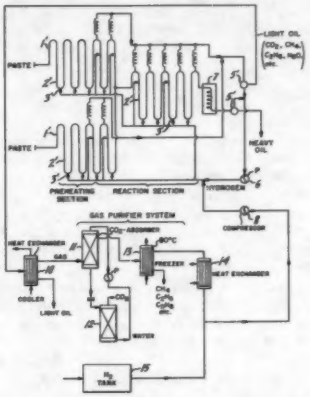
Minoru Morita; Shimio Sato; Takao Hashimoto, all of Yonezawa, and Yoji Kitaoka, Ichihara, all of Japan, assignors to Yamagata University, Japan

Continuation-in-part of Ser. No. 9,828, Feb. 6, 1979, abandoned. This application May 8, 1981, Ser. No. 261,756
Claims priority, application Japan, Feb. 8, 1978, 53-12288
Int. Cl.³ C10G *1/06*
U.S. Cl. 208—10 **12 Claims**

1. A process for directly liquefying coal in a reactor comprising a preheating section and a reaction section connected with said preheating section, each of said sections comprising a plurality of pressure resistant ascending and descending vertical reaction pipes connected in series with one another, which process comprises:

charging paste consisting of finely divided coal, catalyst and heavy oil into said preheating section and passing it sequentially through said series-connected vertical pipes of said preheating section while heating said paste in said preheating section to a temperature of between 380° C. and 410° C. and simultaneously feeding preheated hydrogen gas into each of said pipes of said preheating section to create a combined velocity of the paste and hydrogen gas within the preheating section of Reynolds number of at least 3×10^3 and an axial dispersion coefficient (D/uL) of not more than 0.05;

forwarding the thus-preheated paste and hydrogen gas into said reaction section and passing them sequentially through said series-connected vertical pipes of said reaction section while heating the thus-forwarded paste and hydrogen gas to a temperature of 400° to 500° C. at a pressure of 120 to 700 Kg/cm², employing high pressure gas-liquid separators to remove excess hydrogen gas and gaseous products such as methane, ethane, gasoline and lighter oils at upper ends of ascending pipes of said reaction section, and feeding into each of said pipes of the



reaction section preheated hydrogen gas under pressure to maintain the partial pressure of hydrogen gas high and to create a combined velocity of the paste and hydrogen gas within the reaction section of a Reynolds number of at least 3×10^3 and an axial dispersion coefficient (D/uL) of not more than 0.05, the total quantity of hydrogen gas fed in said preheating section and reaction section being one to three times the stoichiometrically required amount thereof, the reaction of hydrogen gas with said paste taking place in both ascending pipes and descending pipes of said reaction section to produce liquefied crude oil with a liquid/space ratio of 4 to 20.

4,383,912

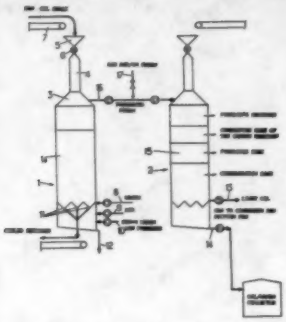
PROCESSES OF PYROLYSIS AND TREATMENT OF PYROLYSIS RESIDUES

Moussa Saadi, Rabat-Agdal; Rabah Bouchta, Rabat, both of Morocco; Chang Y. Cha, Golden, Colo.; Mohamed Sdiqui, Rabat, and Bachir Barodi, Rabat-Souissi, both of Morocco, assignors to Bureau de Recherches et de Participations Minieres, Rabat, Morocco

Filed Jun. 2, 1981, Ser. No. 269,675
Claims priority, application Morocco, Jun. 2, 1980, 19064
Int. Cl.³ C10G *1/00*; C10B *53/06*
U.S. Cl. 208—11 R **13 Claims**

1. A process of pyrolyzing solid materials capable of producing liquid and gaseous hydrocarbons comprising arranging at least two retorts, pyrolyzing said materials in a first one of said at least two retorts, simultaneously treating hot residues from an earlier pyrolysis in a second one of said at least two retorts, said treatment comprising introducing an oxidant gas and atomized water into said second retort, causing said oxidant gas and said water to circulate through said hot residues contained in said second retort, supplying the resulting mixture of oxidant gas and steam to said first retort or into another of said at least two retorts in which a pyrolysis operation is being carried out, discharging cooled residues from said second

retort and supplying raw materials capable of producing liquid and gaseous hydrocarbons when pyrolyzed to said second retort and when said pyrolysis in said first retort and said



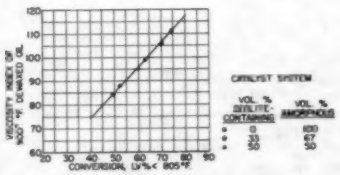
treatment of said residues in said second retort are completed, the mode of operations in said first and second retorts is alternated, if it is desired, to carry out a semi-continuous process.

4,383,913

HYDROCRACKING TO PRODUCE LUBE OIL BASE STOCKS

Bruce E. Powell, Kensington; Jerome F. Mayer, San Anselmo, and John A. Zakarian, Richmond, all of Calif., assignors to Chevron Research Company, San Francisco, Calif.

Filed Oct. 9, 1981, Ser. No. 309,875
Int. Cl.³ C10G *47/20, 49/04, 65/10*
U.S. Cl. 208—59 **9 Claims**



1. A process for producing lubricating oil base stock comprising:

(a) passing a liquid hydrocarbon feedstock, having a VI of less than 80, in the presence of hydrogen, through a first zone containing a first catalyst having a crystalline molecular sieve disposed in a nonzeolitic hydrocracking matrix, said first zone being operated at elevated temperature and pressure to obtain between 25 percent and 75 percent of said hydroconversion to create a lubricating oil base stock having a minimum boiling point equal to the minimum boiling point of said feedstock and a VI of at least 90, and producing an effluent of partially hydroconverted feedstock; and

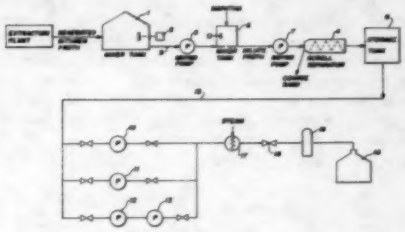
(b) passing at least a portion of said effluent, in the presence of hydrogen, through a second zone containing a second catalyst comprising an amorphous refractory inorganic oxide and catalytic metals selected from the group consisting of Group VI and Group VIII metals, said second zone being operated at elevated temperature and pressure to obtain said lubricating oil base stock.

4,383,914

DILUTION CENTRIFUGING OF BITUMEN FROTH FROM THE HOT WATER PROCESS FOR TAR SAND

Thaddeus E. Kizior, Edmonton, Canada, assignor to Petro-Canada Exploration Inc.; Her Majesty the Queen in right of the Province of Alberta; Ontario Energy Corp.; Imperial Oil Ltd.; Canada-Cities Service, Ltd.; Gulf Oil Canada Ltd. and Ernest Peter Johnson, Edmonton, all of, Canada

Continuation of Ser. No. 70,588, Aug. 29, 1979, abandoned, which is a continuation-in-part of Ser. No. 849,589, Nov. 8, 1977, abandoned, which is a continuation-in-part of Ser. No. 746,667, Dec. 2, 1976, abandoned. This application May 18, 1981, Ser. No. 264,328
Claims priority, application Canada, Dec. 10, 1975, 241479
Int. Cl.³ C10G *1/00*
U.S. Cl. 208—177 **1 Claim**



1. In a dilution centrifuging process wherein deaerated bitumen froth, comprising bitumen, water and coarse and fine solids, is diluted with hydrocarbon, and is treated in a scroll-type centrifugal separator to remove coarse solids, is pumped by centrifugal pump means to a disc-type centrifugal separator and is treated in the latter separator to separate the diluted bitumen from the water and fine solids,

the improvement which comprises:

normally pumping the bitumen-rich product stream obtained from the scroll separator to the disc separator using two or more centrifugal pumps in series, each pump being operated at less than 4000 feet per minute impellor tip speed and at less than its rated design tip speed.

4,383,915

CLAY CONTACTING PROCESS FOR REMOVING CONTAMINANTS FROM WASTE LUBRICATING OIL

Conrad B. Johnson, Edmonton, Canada, assignor to Turbo Resources Ltd., Edmonton, Canada

Continuation-in-part of Ser. No. 147,197, May 6, 1980, abandoned. This application Jan. 15, 1982, Ser. No. 339,617
Int. Cl.³ C10G *25/00, 49/00*
U.S. Cl. 208—183 **13 Claims**

1. A process for the removal of contaminants from untreated waste lubricating oil, containing detergent dispersant agents, comprising the steps of:

(a) contacting the untreated waste oil with a decolourizing clay at a temperature in the range of about 650°–725° F. for a time sufficient to render the mixture readily filterable whereby at least a portion of the contaminants may be separated with the clay from the oil; and then

(b) immediately cooling and filtering the whole product of step (a) to obtain as a filtrate the greatest part of the oil, reduced in contaminant content.

4,383,916
SWEETENING AND DESULFURIZING SULFUR-CONTAINING HYDROCARBON STREAMS

L. Charles Gutberlet, Wheaton; Ralph J. Bertolacini, Naperville; Allen A. Kozinski, St. Charles, all of Ill., and Craig L. Hooper, Houston, Tex., assignors to Standard Oil Company (Indiana), Chicago, Ill.

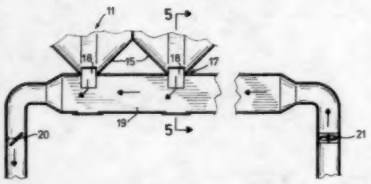
Filed Aug. 28, 1981, Ser. No. 297,273
Int. Cl.³ C10G 45/12
U.S. Cl. 208—189 17 Claims

1. A process for simultaneously sweetening and desulfurizing without added hydrogen a sulfur-containing hydrocarbon stream containing hydrogen donor compounds and boiling at a temperature less than about 650° F., the process comprising contacting the hydrocarbon stream with an oxidic catalyst, said catalyst and said stream being at a temperature of about 300° to 650° F. and at a pressure of about 1 to 5 atmospheres, the oxidic catalyst comprising a molecular sieve selected from the group consisting of hydrogen-form molecular sieves and rare-earth-form molecular sieves, whereby sulfur compounds and hydrogen from said hydrogen donor compounds in said stream are converted to hydrogen sulfide, and mercaptans present in said stream not converted to hydrogen sulfide are converted to other sulfur compounds.

4,383,917
APPARATUS FOR CLASSIFYING AIRBORNE PARTICULATE MATTER

Howard M. Wells, Salt Lake City, Utah, assignor to University of Utah, Salt Lake City, Utah

Continuation-in-part of Ser. No. 187,357, Sep. 15, 1980, abandoned. This application Jul. 6, 1981, Ser. No. 280,591
Int. Cl.³ B04C 3/06
U.S. Cl. 209—144 23 Claims



1. An apparatus for separating particulate matter in an air stream, comprising:

a first chamber having inlet and outlet ports and being adapted to accommodate a particle-bearing air stream, the interior of said chamber configurated such that centrifugal forces cause at least some of said particles to travel adjacent an outer portion of said interior;

means disposed in the first chamber for extracting therefrom at least a portion of the particles traveling adjacent the outer interior portion of said first chamber;

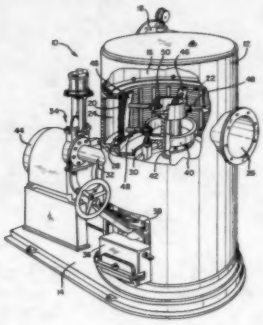
a second chamber for receiving the extracted particles, said second chamber being in fluid communication with the extracting means; and

means for counterbalancing air pressure in the second chamber against air pressure within the first chamber so as to minimize air flow between said first chamber and said second chamber.

4,383,918
HIGH TURBULENCE SCREEN

David E. Chupka, and Peter Seifert, both of Middletown, Ohio, assignors to The Black Clawson Company, Middletown, Ohio

Filed May 2, 1980, Ser. No. 145,654
Int. Cl.³ B07B 1/20
U.S. Cl. 209—234 11 Claims



1. A pressurized paper making stock screen comprising:

a substantially cylindrical screening member having an inlet side and an accepts side,

means for feeding under pressure a suspension of liquid, paper making fibers and undesirable reject particles to said inlet side of said screening member,

means defining a plurality of through slots in said screening member extending substantially circumferentially thereof, said slots having a narrowest portion of from greater than 0.008 inch to approximately 0.030 inch,

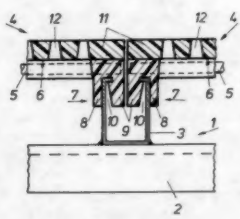
means for generating immediately adjacent said inlet side of said screening member a field of high intensity fine scale turbulence, and

means for removing from said screen rejects too large to pass through said slots.

4,383,919
SCREEN BOTTOM SYSTEM

Gerhard Schmidt, Ettlingen, Fed. Rep. of Germany, assignor to Hein, Lehmann AG, Dusseldorf, Fed. Rep. of Germany

Filed Mar. 9, 1981, Ser. No. 241,804
Claims priority, application Fed. Rep. of Germany, Mar. 8, 1980, 3008931
Int. Cl.³ B07B 1/49
U.S. Cl. 209—399 6 Claims



1. In a screening bottom system made in accordance with the unit construction principle assembly technique of the type including a support structure composed of a plurality of support elements, a plurality of exchangeable reinforced screening elements mounted on said support elements made of an elastic plastic material, and a plurality of clamping elements cooperating with the support elements and made of a castable plastic material, the improvement comprising:

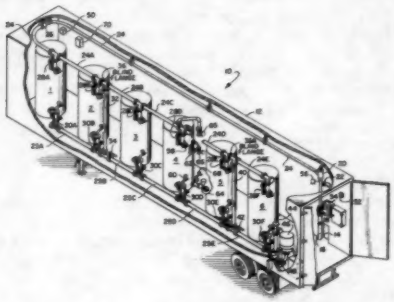
said screening elements being provided with a wear-and-tear resistant layer in the form of a perforated rubber plate and being reinforced with an at least partially plastic reinforced structure and wherein said clamping elements are made of the same plastic material as said reinforced structure and are completely and non-detachably secured thereto.

4,383,920

MOBILE FLUID PURIFICATION SYSTEM

Richard S. Muller, Richmond, and Richard C. Dickerson, Virginia Beach, both of Va., assignors to Ecolochem, Inc., Norfolk, Va.

Filed May 29, 1981, Ser. No. 268,382
Int. Cl.³ C02F 9/00
U.S. Cl. 210—87 **18 Claims**



1. A mobile liquid purification system comprising:
(1) a vehicle;
(2) a set of three or more liquid purification treatment tanks mounted in said vehicle, each of said treatment tanks containing a liquid purification treatment material, each of said treatment tanks further having a liquid inlet, a liquid outlet, a purification treatment material inlet, and a purification treatment material outlet;
(3) a system inlet means adapted to be connected to a source of raw liquid to be purified;
(4) a system outlet means for delivering purified liquid;
(5) liquid conduit and valve means for conveying said raw liquid from said system inlet means to said treatment tanks and between said treatment tanks and from said treatment tanks to said system outlet means, said conduit and valves means being selectively connected to said treatment tanks whereby said treatment tanks are capable of being operated: (a) in series, (b) in parallel, (c) in series/parallel mode, and, (d) in parallel/series mode; and,
(6) measuring means for monitoring the quality of the purified liquid output.

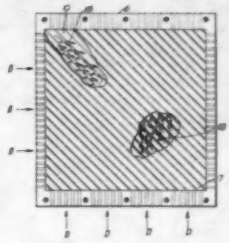
4,383,921

APPARATUS FOR HEAT OR MASS TRANSFER

Brian J. Bellhouse, and Francis H. Bellhouse, both of The Lodge, North St., Islip, Oxfordshire, England

Filed Nov. 21, 1979, Ser. No. 96,404
Int. Cl.³ B01D 31/00
U.S. Cl. 210—321.1 **15 Claims**

7. Apparatus for effecting transfer of heat or mass between two fluids through a transfer membrane, comprising a conduit for flow of one of the fluids at least partly defined by the membrane, a transverse dimension of the conduit varying, either inherently or in response to pressure of fluid therein, in a regularly repeating manner along the length of the conduit to provide a multiplicity of hollows, the apparatus also comprising means communicating with the conduit for passing fluid through the conduit in pulsatile flow, the arrangement being such that pulsation of fluid past the hollows gives rise in the hollows to a rotary fluid flow having components of motion parallel and perpendicular to the general direction of flow in the conduit of said one of the fluids; wherein the hollows are furrows extending obliquely to the general direction of fluid flow through the conduit, wherein said conduit and said means cooperate so that the rotary fluid flow has an additional component along the hollows and the flow involves helical vortices along the hollows, wherein adjacent furrows are separated by discontinuous webs, the openings in the webs providing communication between adjacent furrows to allow the fluid to pass from one furrow to the next as jets to give rise in the furrows to said rotary fluid flow having components of motion parallel and perpendicular to the general direction of flow in the conduit of said one of said fluids.

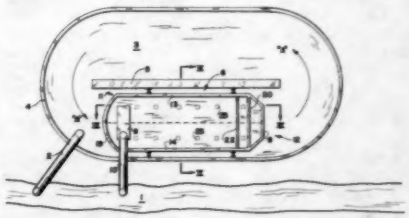


4,383,922

WASTE WATER CLARIFIER

Harold J. Beard, P.O. Box 3838, Baton Rouge, La. 70896

Continuation-in-part of Ser. No. 316,112, Oct. 29, 1981, Pat. No. 4,362,625. This application Apr. 22, 1982, Ser. No. 370,802
Int. Cl.³ B01D 21/00
U.S. Cl. 210—521 **7 Claims**



1. A clarifier for removing solids from waste water in a waste water flow channel comprising,
(a) a forward section connected to a rear section by side walls, said forward section and side walls rising above said waste water, said rear section having an opening below the waste water level to allow said waste water to enter a cavity formed by the forward section, the rear section and the side walls.
(b) a bottom panel attached to said side walls below said waste water level, said bottom panel having rows of vertically inclined panels separated by bottom openings to allow said solids to flow from said cavity back to said channel;
(c) an effluent launder attached to said side panels and postioned in said forward section, said launder comprising a trough having means to allow said waste water located in said cavity to enter said through; and,
(d) hollow directional tubes connecting with said bottom openings and angularly inclined down from said bottom panel and facing opposite the waste water flow.

4,383,923

SEMIPERMEABLE MEMBRANES

Klaus Elfert, Krefeld, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

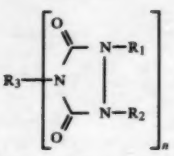
Filed Jun. 29, 1981, Ser. No. 278,624

Claims priority, application Fed. Rep. of Germany, Jul. 2, 1980, 3025079; Dec. 13, 1980, 3047083

Int. Cl.³ B01D *31/00, 13/00*

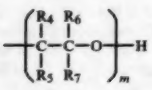
U.S. Cl. 210—654 6 Claims

1. Semipermeable compound membranes consisting of at least one microporous substrate membrane and at least one semipermeable layer, wherein said semipermeable layer consists of a polymer material which has urazole structures and is the polycondensation product of at least one compound corresponding to the formula:



(I)

and/or at least one water-soluble reaction product thereof, wherein R_1 and R_2, which may be the same or different or represent hydrogen or a C_1–C_4 alkyl radical and R_3 represent hydrogen, a C_1–C_{10} aliphatic radical and at least two of the radicals R_1, R_2 and R_3 represent a radical corresponding to the formula



in which R_4, R_5, R_6 and R_7, which may be the same or different independently of each other, represent hydrogen or a C_1–C_4 alkyl radical, m represents an integer from 1 to 10 and n represents 1 or 2, or R_1, R_2 and R_3 represent a glycidyl radical.

4,383,924

TREATMENT OF WATER, ESPECIALLY WATER FOR AQUARIA

Günter Ritter, Melle, Fed. Rep. of Germany, assignor to Tetra Werke Dr. rer. nat. Ulrich Baensch Gesellschaft mit beschränkter Haftung, Melle, Fed. Rep. of Germany

Continuation of Ser. No. 36,234, May 4, 1979, abandoned. This application Oct. 6, 1980, Ser. No. 194,022

Claims priority, application Fed. Rep. of Germany, May 5, 1978, 2819636

Int. Cl.³ C02F *1/42*

U.S. Cl. 210—662 7 Claims

1. A batch process for treating tap water in an aquarium wherein the tap water contains transition element cations, calcium and magnesium in order to remove completely all traces of the transition elements and to adjust the equilibrium of calcium, magnesium and alkali metal ions to a desired mole ratio to thereby convert the tap water to water specifically suitable for aquarium water into which living organisms can be introduced without shock, the method comprising the steps of:

measuring the calcium/magnesium ion mole ratio of the tap water in the aquarium;

comparing the calcium/magnesium ratio to the desired ion mole ratio;

loading a unitary cation exchanger containing a resin treated to have a strong affinity for transition elements with calcium and magnesium ions with a calcium/magnesium mole ratio in the cation exchanger which ratio decreases as the desired calcium/magnesium mole ratio of the tap water in the aquarium decreases to provide an exchanger with a calcium/magnesium mole ratio selected to achieve the desired mole ratio in the tap water, which exchanger has a relatively great affinity for transition elements, a lesser affinity for alkaline earth elements and a still lesser affinity for alkali metals, and thereafter

simultaneously removing the transition elements and achieving the desired calcium/magnesium ratio of the tap water in the aquarium by the single step of immersing the loaded cation exchanger in the aquarium containing the tap water.

4,383,925

FILTERS

Eduard Hilscher, Idstein; Karl-Heinz Ott, Kelkheim, and Rüdiger L. von Reppert, Wiesbaden, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Continuation of Ser. No. 155,587, Jun. 2, 1980, which is a continuation of Ser. No. 788,322, Apr. 18, 1977, abandoned, which is a continuation of Ser. No. 716,970, Aug. 23, 1976, abandoned, which is a continuation of Ser. No. 519,414, Oct. 31, 1974, abandoned. This application Dec. 9, 1981, Ser. No. 329,128

Claims priority, application Fed. Rep. of Germany, Nov. 2, 1973, 2354917

Int. Cl.³ C02F *1/40, 1/56*

U.S. Cl. 210—708 7 Claims

1. In a process of dewatering industrial sludge selected from the group consisting of

(a) a sludge with an addition of a flocculating agent selected from the group consisting of polyacrylamide, polymeric phosphates, aluminum sulfate, lime and crude phosphate prior to dewatering,

(b) sludge coagulated from an emulsion by addition of a coagulating agent and

(c) sludge coagulated from an emulsion by addition of a coagulating agent and then flocculated with one of said flocculating agents prior to dewatering,

the improvement comprising filtering the said sludge through a filter device comprised of a (A) tube-like outer filter layer consisting of a woven fabric of a polyester or polyamide filament yarn acting as a support for (B) a tube-like inner layer made of a non-woven fabric of polyester, polyamide or polyolefin fibers, the warp and weft thread setting being 7.8 to 9.2 threads per cm with the thread settings altering dependent on different fiber thickness.

4,383,926

PROCESS OF DEMULSIFYING AND/OR CLARIFYING AQUEOUS SYSTEMS WITH AZETIDINIUM POLYMERS

Rudolf S. Buriks, and Eva G. Lovett, both of St. Louis, Mo., assignors to Petrolite Corporation, St. Louis, Mo.

Division of Ser. No. 128,337, Mar. 7, 1980, Pat. No. 4,341,887. This application Jan. 15, 1982, Ser. No. 339,522

Int. Cl.³ C08F *126/00*

U.S. Cl. 210—708 4 Claims

1. A process of demulsifying and/or clarifying aqueous systems which comprises treating oil-in-water emulsions with homo and copolymers of N,N-diallyl-3-hydroxy azetidinium halide, formed under free radical conditions where, in the copolymers, one of the monomers of the copolymer is a vinyl monomer.

4,383,927

RECOVERY OF OIL FROM OILY SLUDGES

Sanjay R. Srivatsa, Naperville, Ill., assignor to Nalco Chemical Company, Oak Brook, Ill.

Filed Mar. 8, 1982, Ser. No. 355,479

Int. Cl.³ B01D *17/04*

U.S. Cl. 210—708 9 Claims

1. A process for enhancing oil recovery from an oily sludge

containing a solid phase, an oil phase and a water phase which consists essentially in adding a positively charged latex flocculant to such sludge and immediately thereafter adding a chemical emulsion breaker which is negatively charged or nonionic, while controlling the proportions of said flocculant and said emulsion breaker to cause the entrapped oil phase to detach from the floc surface of the adsorptive solids and go into the water phase, and mechanically separating the oil from the solids and water.

4,383,928

TREATMENT OF WATER CONTAMINATED WITH DISPERSED RESIN

Joseph C. Sherwood, and Richard T. Brunbeck, both of Reading, Pa., assignors to SCM Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 215,694, Dec. 12, 1980, abandoned. This application Feb. 8, 1982, Ser. No. 346,958

Int. Cl.³ C02F *1/52*

U.S. Cl. 210—724 **10 Claims**

1. A process for treating water contaminated with a dilute dispersion of ionized film-forming resin which comprises:

gradually mixing a minor flocculating proportion of Portland cement with a major proportion of said contaminated water until the resin flocculates; and

allowing the resulting cementitious floc to consolidate for disposal, the volume of the resulting consolidate being a minor fraction of the contaminated water being treated.

4,383,929

FLUORINATED SULPHOBETAINES AND COMPOSITIONS CONTAINING THE SAME

Rene Bertocchio, Vourles par Vernaison; Louis Foulletier, Oullins, and Andre Lantz, Vernaison, all of France, assignors to Produits Chimiques Ugine Kuhlmann, Courbevoie, France

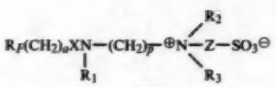
Filed Mar. 24, 1980, Ser. No. 133,477

Claims priority, application France, Apr. 6, 1979, 79 08749

Int. Cl.³ A62D *1/00*; B01F *17/24, 17/26*; C07C *143/76*

U.S. Cl. 252—8.05 **6 Claims**

1. A linear fluorinated sulphobetaine compound having the formula:



wherein R_F is a straight-chained or branched aliphatic perfluorinated chain C_nF_{2n+1}, n being an integer from 1 to 20, a is an integer from 0 to 10, X is a CO or SO_2 radical, p is an integer from 0 to 10, R_1 is a hydrogen atom or an alkyl radical containing 1 to 6 carbon atoms, R_2 and R_3 are each alkyl radicals containing 1 to 6 carbon atoms, and Z is a lower alkylene radical having the formula $(CH_2)_q$ wherein q is an integer from 1 to 10 or a polymethylene radical substituted either by an alkyl group or by the functional group OH or COOH.

4,383,930

MOBILITY CONTROL AGENT

Perry A. Argabright, Larkspur; John S. Rhudy, and Brian L. Phillips, both of Littleton, all of Colo., assignors to Marathon Oil Company, Findlay, Ohio

Filed Jun. 20, 1980, Ser. No. 161,547

Int. Cl.³ E21B *43/22*

U.S. Cl. 252—8.55 D **10 Claims**

1. In a process for the recovery of hydrocarbons from a subterranean formation which comprises introducing into the formation as a mobility control agent an aqueous solution of a high molecular weight polyacrylamide composition, and forcing the solution through the formation, the improvement which comprises preparing the high molecular weight polyacrylamide composition by conducting the aqueous solution polymerization of a water soluble acrylamide monomer in the presence of a catalyst consisting essentially of a persulfate and ferrous ammonium sulfate, the persulfate and the ferrous ammonium sulfate being present in an amount sufficient to provide a polymer having increased permeability reduction capabilities thereby enhancing the mobility control properties of the polyacrylamide composition.

4,383,931

LUBRICATING OILS CONTAINING MOLYBDENYL CHELATES

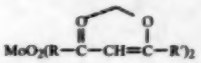
Yumi P. Ryu, Murrysville Borough, and Robert J. Hartle, Gibsonia, both of Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed Dec. 2, 1981, Ser. No. 326,698

Int. Cl.³ C10M *1/38, 1/54*

U.S. Cl. 252—32.7 E **6 Claims**

1. A lubricating oil composition having improved antifriction properties comprising a major portion of a hydrocarbon lubricating oil and in solution (a) between about 0.01 and about five weight percent of an active organic sulfur donor and (b) between about 0.05 and about six weight percent of a molybdenyl bis-β-diketonate having the general formula:



where R and R′ are independently selected from the group consisting of alkyl, aryl, aralkyl, alkaryl and cycloalkyl radicals containing from one to about twelve carbon atoms, and the sum of the carbon atoms in R and R′ is three to about 24 carbon atoms.

4,383,932

WATER REMOVING COMPOSITION

Iwao Hisamoto, Suita; Chiaki Maeda, Settsu; Yukio Omure, Takatsuki, and Takashi Onishi, Higashiosaka, all of Japan, assignors to Daikin Kogyo Co., Ltd., Osaka, Japan

Filed Nov. 4, 1977, Ser. No. 848,732

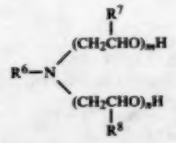
Int. Cl.³ C09K *3/00*

U.S. Cl. 252—194 **2 Claims**

1. A composition suitable for use in removing water from solid surfaces which comprises:

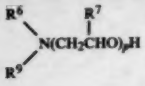
(a) a halogenated hydrocarbon solvent;

(b) at least one member selected from the group consisting of amines having an oxyalkylene group of the following general formula:



wherein R^6 is an alkyl group having 6 to 20 carbon atoms which may be straight chained or branch chained, R^7 and

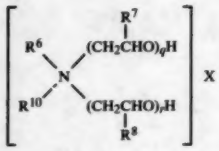
R^8 are hydrogen or methyl group, and m and n are 0 or an integer of 1 to 5 and m+n equals 1 to 10, or:



wherein R^6 and R^7 are as defined above, R^9 is an alkyl group having 1 to 15 carbon atoms, and p is an integer of 1 to 6, salts of said amine with an organic acid of the following general formula:

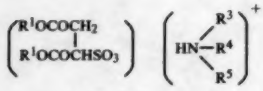
R^1COOH, $HOOCR^2COOH$, R^1SO_3H, R^1OSO_3H, R^1OPO_3H or $(R^1O)_2PO_2H$

wherein R^1 is an alkyl group having 1 to 20 carbon atoms which may be substituted with a hydroxyl group, or an alkylphenyl group having 7 to 26 carbon atoms and R^2 is an alkylene group having 1 to 10 carbon atoms, and quaternary ammonium salts of the following general formula:



wherein R^6, R^7 and R^8 are as defined above, R^{10} is an alkyl group having 1 to 20 carbon atoms, q and r are an integer of 1 to 5 and q+r equals 2 to 6, and X is an acid radical of said acids;

(c) at least one substituted amine salt with a dialkyl sulfosuccinate having the following general formula:



wherein R^1 is as defined above, and R^3, R^4 and R^5 are the same or different and each is hydrogen, an alkyl group having 1 to 20 carbon atoms which may be substituted with a hydroxyl group, or a polyoxyalkylene group, provided that all R^3, R^4 and R^5 are not hydrogen at the same time;

said (b) and (c) components being present in an amount of 0.5 to 10% by weight based on the weight of the solvent and said (c) component being present in an amount of 1 to 50% by weight based on the total weight of components (b) and (c).

4,383,933

ORGANO TITANIUM COMPLEXES

Fred W. Jenkins, St. Louis, Mo., assignor to Petrolite Corporation, St. Louis, Mo.

Filed Jan. 30, 1981, Ser. No. 229,901
Int. Cl.³ B01D *17/04*
U.S. Cl. 252—329 **16 Claims**

1. A demulsifier composition of matter useful for demulsifying an oil-in-water emulsion comprising

(1) an O/W organic demulsifier, and
(2) titanium tetrachloride

the weight ratio of demulsifier to titanium tetrachloride varying from 0.5 to 8.

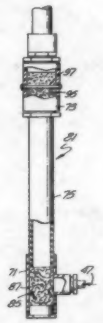
4,383,934
Patent Not Issued For This Number

4,383,935

MOBILE FOAM BRUSH WASHING SYSTEM INCLUDING MIXING APPARATUS FOR FOAM GENERATION

Donald A. Hull, 6660 Woodman Ave., #105, Van Nuys, Calif. 91405

Continuation-in-part of Ser. No. 148,563, May 9, 1980. This application Nov. 9, 1981, Ser. No. 319,274
The portion of the term of this patent subsequent to Dec. 28, 1999, has been disclaimed.
Int. Cl.³ B01F *5/06;* **B05C** *9/02;* **B08B** *13/00*
U.S. Cl. 252—359 E **14 Claims**



1. A mobile apparatus for providing a foam from a mixture of fluids, and comprising, in combination:

a mobile cart;

water supply means on said cart for receiving water at a predetermined pressure;

fluid chemical container means on said cart for storing a supply of fluid chemical;

venturi means operatively connected to said water supply means and said fluid chemical container means for mixing water and fluid chemical in a predetermined ratio to provide a fluid chemical-water mixture;

air supply means mounted on said cart for providing compressed air;

mixing means mounted on said cart and operatively connected to said air supply means and to said venturi means for mixing said compressed air and said fluid chemical-water mixture in a predetermined ratio to provide a combined fluid mixture of air, water, and chemical;

foam generator means mounted on said cart for receiving said combined fluid mixture of air, water, and chemical to

generate a foam therefrom, said foam generator means comprising:

a fluid inlet for receiving said combined fluid mixture of air, water, and chemical;

a first expansion turbulator connected to said fluid inlet and said first expansion turbulator having means for generating a turbulence in said combined fluid mixture flowing through said first expansion turbulator;

relatively quiescent flow path expansion means for receiving fluid which has traversed said first expansion turbulator;

second expansion turbulator having means for generating a turbulence in the fluid flow therethrough in fluid communication with said flow path expansion means for receiving fluid flow therethrough;

a fluid outlet means connected to said second expansion turbulator for receiving fluid flowing therefrom, and said second expansion turbulator having a larger cross-sectional dimension than said flow path expansion means, and said second expansion turbulator having a larger cross-sectional dimension than said first expansion turbulator.

4,383,936

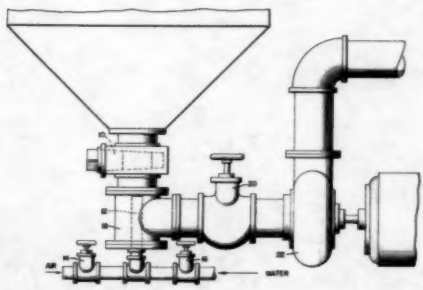
AUTOGENOUSLY DISPERSIBLE ALKALINE EARTH METAL CARBONATE COMPOSITION

Arvel O. Franz, and John L. Gray, both of Cartersville, Ga., assignors to Chemical Products Corporation, Cartersville, Ga.

Continuation-in-part of Ser. No. 725,633, May 1, 1968, abandoned. This application May 10, 1971, Ser. No. 141,971

Int. Cl.³ B01F *3/20*

U.S. Cl. 252—363.5 **12 Claims**



1. An autogenously dispersible alkaline earth metal carbonate composition consisting essentially of alkaline earth metal carbonate and an ultra-hydrophilic dispersant, and further characterized as the product of essentially completely deflocculating, in water, said alkaline earth metal carbonate with said ultra-hydrophilic dispersant and drying said deflocculated alkaline earth metal carbonate under conditions which are non-destructive of said ultra-hydrophilic dispersant, said ultra-hydrophillic dispersant being material producing a true solution thereof in water and causing relatively rapid imbibition of 8.5 ml. of water by 25 grams of dried alkaline earth metal after said carbonate has been deflocculated in water by 0.25% or less by weight of said dispersant, dried and ground, said dried carbonate demonstrating fluidity after the addition of about 6 ml. of said water.

4,383,937

AQUEOUS FUNCTIONAL FLUID COMPOSITIONS

Mark A. Williams, Cincinnati, Ohio, assignor to Cincinnati Milacron Inc., Cincinnati, Ohio

Filed Sep. 21, 1981, Ser. No. 303,770

Int. Cl.³ C23F *11/12, 11/14*

U.S. Cl. 252—389 R **23 Claims**

1. A corrosion inhibiting aqueous functional fluid composition comprising (a) water, (b) a water soluble or dispersible, surface active, corrosion inhibiting alkali metal, ammonium or organic amine salt of a water insoluble C_4 to C_{10} aliphatic monohydric secondary alcohol half ester of a hydrocarbon carbocyclic dicarboxylic acid or anhydride having 6 to 9 carbon atoms and a C_4 to C_6 carbocyclic ring and selected from the group consisting of cycloaliphatic, alkyl substituted cycloaliphatic, aromatic or alkyl substituted aromatic dicarboxylic acid or anhydride, said half ester having a molecular weight in the range of from 240 to 297 and optionally (c) a substance selected from the group consisting of a surfactant and a water soluble or dispersible lubricant or mixtures thereof, said fluid having a pH in the range of from 8 to 12.

4,383,938

CATALYST SYSTEM FOR OLEFINIC POLYMERIZATION

Arthur W. Langer, Jr., Watchung, N.J., assignor to Exxon Research and Engineering Co., Florham Park, N.J.

Continuation of Ser. No. 172,769, Jul. 21, 1980, abandoned, which is a continuation of Ser. No. 790,832, Apr. 25, 1977, abandoned, which is a continuation-in-part of Ser. No. 767,748, Feb. 11, 1977, abandoned. This application Apr. 16, 1981, Ser. No. 254,646

Int. Cl.³ C08F *4/64, 10/06*

U.S. Cl. 252—429 B **1 Claim**

1. An improved catalyst composition adaptable for use in propylene polymerization for the production of polypropylene resin having less than about 11.0 weight percent heptane solubles which consists of a mixture of:

(a) $TiCl_4$ supported on $MgCl_2$, said $TiCl_4$ supported on $MgCl_2$ being prepared by dry ball milling a mixture of said $MgCl_2$, said $TiCl_4$ and ethyl benzoate;

(b) $(s\text{-}Bu)_2Mg$; and

(c) an alkyl aluminum dihalide having the formula $RAlX_2$, wherein X is Cl or Br and R is an alkyl group having 2 to 8 carbon atoms, a molar ratio of said alkyl aluminum dihalide to said $(s\text{-}Bu)_2Mg$ being 0.5:1 to 2:1, and the molar ratio of said alkyl aluminum dihalide or said $(s\text{-}Bu)_2Mg$ to said $TiCl_4$ supported on said $MgCl_2$, being less than 20:1.

4,383,939

POLYMERIZATION CATALYST

Alexander Johnstone, Stenhousemuir, Scotland, assignor to BP Chemicals Limited, London, England

Filed Jan. 27, 1982, Ser. No. 343,247

Claims priority, application United Kingdom, Jan. 31, 1981, 8103044

Int. Cl.³ C08F *4/64*

U.S. Cl. 252—429 B **11 Claims**

1. A supported Ziegler catalyst component comprising the product obtained by

(A) reacting together a refractory oxide support material having surface hydroxyl groups and one or more halogen-containing transition metal compounds, the transition

metal being one or more selected from Groups 4b, 5b, 6b, and 8 of the Periodic Table,

(B) reacting the product obtained from step A with one or more organometallic compounds having the general formular $MR^1_aQ_{b-a}$ wherein M is a metal selected from aluminium, boron, lithium, zinc, magnesium, silicon and tin, R^1 is a hydrocarbyl group, Q is hydrogen halogen or an oxyhydrocarbyl group, b is the valency of M and a is an integer from 1 to b,

(C) reacting the product from step B with one or more transition metal compounds at least one which is a vanadium compound and which may be the same or different from the transition metal compound employed in step A.

4,383,940

CATALYSTS FOR HYDROGENATION OF UNSATURATED DINITRILES

Timothy P. Murtha, Bartlesville, and Charles A. Drake, Nowata, both of Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 213,444, Dec. 5, 1980, Pat. No. 4,311,859. This application Nov. 30, 1981, Ser. No. 326,108

Int. Cl.³ B01J *21/08, 23/46*

U.S. Cl. 252—460 **9 Claims**

1. A process for preparing a hydrogenation catalyst comprising the steps of

contacting a silica support having a surface area of at least about 275 m^2/g, a pore volume of from about 1.0 to about 1.5 mL/g and an average pore size of from about 100 to about 175 A with a liquid solution of a substance selected from rhodium and reducible compounds of rhodium so as to incorporate within the hydrogenation catalyst from about 0.05 to about 30 weight percent of rhodium;

drying the thus-contacted silica support under a vacuum of from about 10^{-4} to about 20 mm Hg at a temperature of about 20° to about 250° C. for a time of about 15 minutes to about 30 hours; and

contacting the thus-dried silica support with a reducing agent under reducing conditions to produce a rhodium-containing hydrogenation catalyst.

5. The process of claim 1 in which the reducing agent is selected from the group consisting of hydrogen, hydrazine and sodium borohydride.

7. The hydrogenation catalyst prepared by the method of claim 1, 2, 3, or 5.

4,383,941

CATALYST STRUCTURE INCLUDING GLASS FIBER PRODUCT

Hideya Inaba, and Masayoshi Ichiki, both of Osaka, Japan, assignors to Hitachi Shipbuilding & Engineering Co., Ltd., Osaka, Japan

Filed Oct. 28, 1981, Ser. No. 316,050

Claims priority, application Japan, May 22, 1979, 54-63633; May 22, 1979, 54-63634

Int. Cl.³ B01J *35/06*

U.S. Cl. 252—477 R **5 Claims**

1. A catalyst structure comprising a shape retaining metal core having a desired shape, a catalyst particle holding layer attached to the core and made of a glass fiber product having a plurality of filament-to-filament interstices, and catalyst particles held in the interstices of the holding layer.

4,383,942

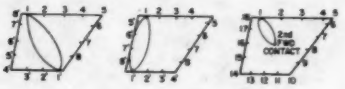
APPARATUS AND METHOD FOR ENHANCING ELECTRICAL CONDUCTIVITY OF CONDUCTIVE COMPOSITES AND PRODUCTS THEREOF

Donald E. Davenport, Palo Alto, Calif., assignor to MB Associates, San Ramon, Calif.

Division of Ser. No. 853,393, Nov. 21, 1977, Pat. No. 4,216,423, which is a continuation-in-part of Ser. No. 779,986, Mar. 22, 1977, abandoned. This application Jan. 21, 1980, Ser. No. 113,445

Int. Cl.³ A01B *1/06*

U.S. Cl. 252—512 **45 Claims**



1. A method of increasing the conductivity of a plurality of articles, each article substantially identically shaped and is of a composite material containing at least 5% electrically conductive additives by volume dispersed throughout the composite material, said method comprising,

attaching connectors in pairs to sets of selected locations in the surface of said material,

passing at least one electrical pulse through the pair of connectors and composite material at each set of selected locations,

measuring the resistance of said composite material at each set of selected locations,

adjusting the parameters of energy and of the number of electrical pulses at each set of selected locations to optimize the conductivity of said composite material, and

selecting the optimized parameters to increase the conductivity of subsequently treated substantially identically shaped articles of said composite material.

4,383,943

ACETALDEHYDE ETHYL ISOEUGENYL ACETAL PERFUME COMPOSITIONS

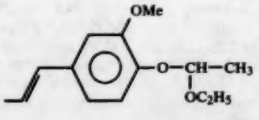
Michael R. Britten-Kelly, Metuchen, N.J.; Edward J. Shuster, Brooklyn, and Odd Hansen, Jackson Heights, both of N.Y., assignors to Fritzsche Dodge & Olcott Inc., New York, N.Y.

Filed Oct. 7, 1981, Ser. No. 309,378

Int. Cl.³ A61K *7/46*

U.S. Cl. 252—522 R **2 Claims**

1. The compound acetaldehyde ethyl isoeugenyl acetal, having the formula:



4,383,944

METHOD FOR PRODUCING MOLDED BODIES CONTAINING HIGHLY ACTIVE RADIOACTIVE WASTES FROM GLASS GRANULES EMBEDDED IN A METALLIC MATRIX

Gerhard Ondracek, Linkenheim, Fed. Rep. of Germany, assignor to Kernforschungszentrum Karlsruhe Gesellschaft mit beschränkter Haftung, Karlsruhe, Fed. Rep. of Germany

Filed Dec. 28, 1979, Ser. No. 108,166

Claims priority, application Fed. Rep. of Germany, Dec. 28, 1978, 2856466

Int. Cl.³ G21F 9/16

U.S. Cl. 252—628 14 Claims

1. A method for producing a molded body containing radioactive wastes, in which the wastes are mixed with molten glass or are melted together with glass formers to form a melt, and the melt is converted into glass granules or glass powder comprising:

(a) mixing the glass granules or glass powder with a powder of a metal selected from the group consisting of lead, iron, silver, cobalt, nickel, tin and mixtures thereof, wherein the glass-to-metal ratio is selected so that the glass-to-metal ratio in the molded body is 20:1 to 1:6, by volume, and,

(b) condensing the mixture resulting from step (a) by subjecting the mixture to pressure of 25 Newtons/mm^2 to 500 Newtons/mm^2 to form a molded body in which the glass granules or glass powder are discontinuously embedded without contacting each other in the metal which forms a continuous metal matrix phase.

4,383,945

4-SUBSTITUTED-2-OXOAZETIDINE COMPOUNDS AND PROCESSES FOR THE PREPARATION THEREOF

Masashi Hashimoto, Takarazuka; Matsuhiko Aratani, Suita, and Kozo Sawada, Toyonaka, all of Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan

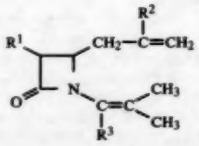
Continuation-in-part of Ser. No. 237,936, Feb. 25, 1981. This application Aug. 27, 1981, Ser. No. 296,840

Claims priority, application United Kingdom, Feb. 28, 1980, 8006842; European Pat. Off., Feb. 24, 1981, 81101322.6

Int. Cl.³ C07D 403/04, 498/10, 205/08, 487/04

U.S. Cl. 260—239 A 6 Claims

1. A compound of the formula:



in which

R^1 is halogen, isocyano, hydroxy(lower)alkyl or protected hydroxy(lower)alkyl,

R^2 is hydrogen or lower alkyl group optionally substituted by a substituent selected from the group consisting of carboxy and protected carboxy, and

R^3 is carboxy or a protected carboxy group, or a base salt thereof.

4,383,946

PROCESS FOR THE PREPARATION OF 1-CARBAPENEMS AND INTERMEDIATES VIA SILYL-SUBSTITUTED DITHIOACETALS

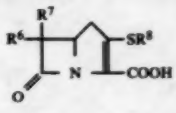
Burton G. Christensen, Scotch Plains; Ronald W. Ratcliffe, Matawan, and Thomas N. Salzmann, North Plainfield, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Continuation of Ser. No. 134,397, Mar. 27, 1980. This application Sep. 18, 1981, Ser. No. 303,459

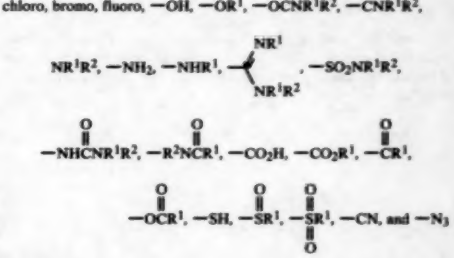
Int. Cl.³ C07D 487/04

U.S. Cl. 260—245.2 T 1 Claim

1. A process for preparing

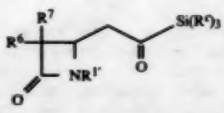


wherein: R^6, R^7 and R^8 are independently selected from the group consisting of: hydrogen; substituted and unsubstituted: alkyl, alkenyl, and alkynyl, having from 1–10 carbon atoms; cycloalkyl, cycloalkylalkyl, and alkylcycloalkyl, having 3–6 carbon atoms in the cycloalkyl ring and 1–6 carbon atoms in the alkyl moieties; phenyl; aralkyl, aralkenyl, and aralkynyl wherein the aryl moiety is phenyl and the aliphatic portion has 1–6 carbon atoms; wherein the substituent or substituents relative to the above-named radicals are selected from the group consisting of:



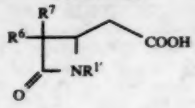
wherein, relative to the above listed substituents on R^8, R^6 and R^7, the groups R^1 and R^2 are independently selected from: hydrogen, alkyl, alkenyl, and alkynyl, having from 1–10 carbon atoms; cycloalkyl, cycloalkylalkyl, and alkylcycloalkyl, having 3–6 carbon atoms in the cycloalkyl ring and 1–6 carbon atoms in the alkyl moieties; phenyl; aralkyl, aralkenyl, and aralkynyl wherein the aryl moiety is phenyl and the aliphatic portion has 1–6 carbon atoms; when R^6/R^7 is hydrogen, then R^7/R^6 is not

when R^8 is $CH_2CH_2NH_2$; which process comprises the steps of oxidizing:

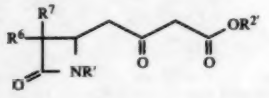


to form:

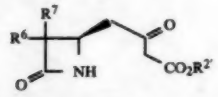
-continued



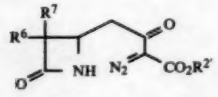
wherein $R^{1'}$ is hydrogen or a triorganosilyl or 3,4-dimethoxybenzyl protecting group; and R^c is independently selected from alkyl having 1–6 carbon atoms and phenyl; followed by treating with 1,1'-carbonyl-dimidazole followed by $R^{2'}O_2CCH_2CO_2)_2Mg$ to yield:



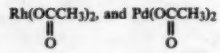
wherein $R^{2'}$ is a protecting group selected from p-nitrobenzyl or benzyl; followed by hydrolysis to yield:



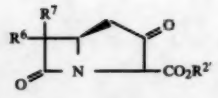
followed by treating with a diazotizing agent selected from p-carboxybenzenesulfonylazide, toluene sulfonylazide, methanesulfonylazide, toluenesulfonylazide, and methanesulfonylazide to yield:



followed by cyclizing in the presence of a catalyst selected from bis(acetylacetonato)Cu (II), $CuSO_4$, Cu powder,



to yield:



Followed by activating by treating with an acylating agent selected from p-toluenesulfonic acid anhydride, p-nitrophenylsulfonic acid anhydride, 2,4,6-triisopropylphenylsulfonic acid anhydride, methanesulfonic acid anhydride, trifluoromethane sulfonic acid anhydride, diphenyl chlorophosphate, toluenesulfonyl chloride, and p-bromophenylsulfonyl chloride; followed by reacting with HSR^8 and deblocking.

4,383,947

INTRODUCTION OF A FLUORINE ATOM

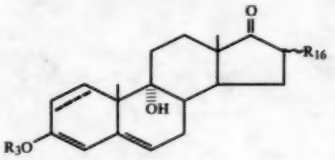
Joseph M. Timko, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Filed Jul. 24, 1981, Ser. No. 286,306

Int. Cl.³ C07J 1/00

U.S. Cl. 260—397.45 **14 Claims**

1. A C_3-protected 3,9α-dihydroxyandrosta-3,5-dien-17-one of the formula



(II)

where R_3 is alkyl of 1 thru 3 carbon atoms or R_3'—CO—, R_3' is alkyl of 1 thru 3 carbon atoms or phenyl, R_{16} is a hydrogen atom or methyl group, ~ indicates the attached group can be in the α or β configuration, and ____ is single or double bond.

4,383,948

HYDRAZONE DERIVATIVES CONTAINING A QUATERNARY AMMONIUM GROUP USEFUL AS UV ABSORBERS

Beat Müller, and Martin Roth, both of Marly, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

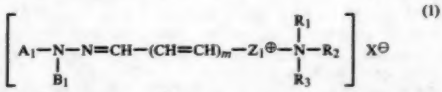
Filed May 18, 1981, Ser. No. 264,929

Claims priority, application Switzerland, May 21, 1980, 3962/80

Int. Cl.³ C07C 119/10; G03C 1/7

U.S. Cl. 260—459 A **7 Claims**

1. A hydrazone derivative of the formula



(I)

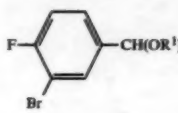
in which A_1 is phenyl or naphthyl, unsubstituted or substituted by alkyl or alkoxy with 1 to 4 carbon atoms, hydroxyl or halogen; B_1 is hydrogen, alkyl having 1 to 8 carbon atoms and being unsubstituted or substituted by methoxy, hydroxyl, cyano, halogen, carboxamido or carbalkoxy having 2 to 9 carbon atoms; cycloalkyl having 5 or 6 ring carbon atoms and being unsubstituted or substituted by alkyl or alkoxy of 1 or 2 carbon atoms; phenyl- or naphthyl-alkyl having 1 to 4 carbon atoms in the alkyl moiety and being unsubstituted or substituted in the phenyl or naphthyl moiety by alkyl or alkoxy of 1 to 4 carbon atoms; or phenyl or naphthyl being unsubstituted or substituted by alkoxy of 1 to 4 carbon atoms; R_1, R_2 and R_3 independently of one another are alkyl of 1 to 8 carbon atoms being unsubstituted or substituted by methoxy, hydroxyl, cyano, halogen or carboxamide; cycloalkyl having 5 to 6 ring carbon atoms and being unsubstituted or substituted by methyl or methoxy; or phenylalkyl having 1 to 4 carbon atoms in the alkyl moiety and being unsubstituted or substituted in the phenyl moiety by alkyl or alkoxy of 1 to 4 carbon atoms; polyoxaalkylene of formula $H—(OC_2H_4-)_{n_1}$ is 2 or 3; Z_1 is phenylene or naphthylene being unsubstituted or substituted by hydroxyl, nitro, cyano, halogen or alkyl or alkoxy of 1 to 4 carbon atoms, $X^{\ominus}$ is an anion and m is 0, 1, 2 or 3.

4,383,949
PREPARATION OF 3-BROMO-4-FLUOROBENZALDEHYDE AND ITS ACETALS

Fritz Maurer; Hans-Jochem Riebel, both of Wuppertal; Uwe Priesnitz, Solingen, and Erich Klauke, Odenthal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jun. 26, 1981, Ser. No. 277,585
Claims priority, application Fed. Rep. of Germany, Jul. 16, 1980, 3026959
Int. Cl.³ C07C *121/52, 43/313, 47/55, 103/22*
U.S. Cl. 260—465 G 12 Claims

1. A process for the preparation of a 3-bromo-4-fluorobenzaldehyde acetal of the formula

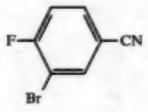


in which

R^1 is methyl or ethyl,

which comprises reacting a 3-bromo-4-fluoro-benzoic acid halide with ammonia to form 3-bromo-4-fluoro-benzoic acid amide, dehydrating said amide to form 3-bromo-4-fluoro-benzonitrile, reacting the nitrile with formic acid in the presence of a catalyst at a temperature between about 0° and 150° C. to form 3-bromo-4-fluoro-benzaldehyde, and reacting said aldehyde with R^1OH or a derivative thereof capable of forming an acetal.

9. 3-Bromo-4-fluoro-benzonitrile of the formula

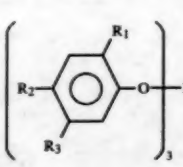


4,383,950
PHOSPHITE STABILIZERS

Michael Rasberger, Riehen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation of Ser. No. 137,146, Apr. 4, 1980, abandoned, which is a continuation of Ser. No. 58,048, Jul. 16, 1979, abandoned. This application Oct. 14, 1981, Ser. No. 311,138
Claims priority, application Switzerland, Jul. 27, 1978, 8085/78
Int. Cl.³ C07F *9/145*
U.S. Cl. 260—967 3 Claims

1. A compound of formula I



(I)

wherein

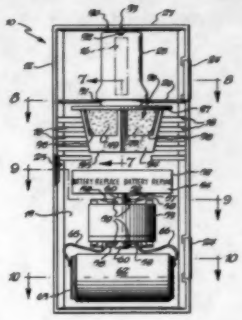
R_1 is 1,1,3,3-tetramethylbutyl,

R_2 is methyl, isopropyl, tert-butyl, tert-amyl, nonyl or 1,1,3,3,5,5-hexamethylhexyl, and R_3 is hydrogen or methyl, or R_3 together with R_2 is 1,1,3,3-tetramethyl-1,3-propylene.

4,383,951
FORCED FLOW VAPOR DISTRIBUTION DEVICE

Richard C. J. Palson, Medfield, Mass., assignor to Woodlets, Inc., Buffalo, N.Y.

Filed Aug. 24, 1981, Ser. No. 295,846
Int. Cl.³ A61L *9/04*
U.S. Cl. 261—30 17 Claims



1. A forced flow evaporative device for imparting a vapor to air forcibly caused to flow therethrough, said device comprising:

(a) an enclosed housing having air inlet and outlet ports, said inlet ports being spaced from said outlet ports;

(b) a hollow fluid container positioned within said housing, said container having a shoulder portion terminating in a narrow elongated neck;

(c) a cup member having a base, an upstanding sidewall extending upwardly from said base and terminating in an open top, and a plurality of apertures in said sidewall, said apertures being spaced from said base and from each other, said cup member being positioned in substantially underlying relationship with said container;

(d) a cover plate positioned adjacent the top of said upstanding sidewall of said cup member, said cover plate having an aperture to receive said narrow elongated neck of said container;

(e) means for holding said cover plate in fixed relationship to said container;

(f) means for holding said cup member in fixed relationship to said cover plate;

(g) a fluid absorbent material positioned within said cup member and adjacent to said apertures; and

(h) flow inducing means for forcing air to enter said housing through said air inlet, around the periphery of said cup member, and through said outlet.

4,383,952
CARBURETOR

Livio Montefameglio; Lorenzo Ciaccio, and Guido Spiga, all of Bologna, Italy, assignors to Weber S.p.A., Milan, Italy

Filed Jan. 6, 1982, Ser. No. 337,421
Claims priority, application Italy, Mar. 24, 1981, 3376 A/81
Int. Cl.³ F02M *5/02*
U.S. Cl. 261—72 R 3 Claims

1. A carburetor for internal combustion engines of motor vehicles, comprising

a suction conduit;

a float chamber located adjacent said suction conduit;

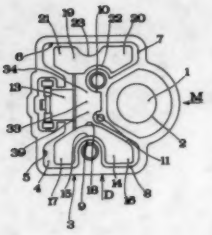
an emulsioning tube for emulsifying therein the fuel sucked in by said suction conduit;

a main jet for metering the fuel to be fed to said emulsioning tube;

a float member system cooperating with a needle valve arranged at an inlet of said float chamber to define a fuel level within said float chamber and a free space for the

fuel between the inner walls of said float chamber and outer surfaces of said float members;

said float chamber having a flat bottom surface and vertical side walls and at least one flat surface defines a portion of a carburetor cover facing said float chamber and said main jet of the carburetor is located in a vertical plane passing through the center of gravity of a plane figure formed by sectioning said free space by the plane of the fuel level in said float chamber when the carburetor is in a horizontal position;



at least two of said vertical side walls of said float chamber being formed integrally with part cylindrical hollow columns projecting inwardly from said vertical side walls and each of said float members having at least one substantially vertically extending hollow surface matching the outer surface of said part cylindrical hollow columns so that said float members are to a limited extent movable in said float chamber with a substantially vertical angular movement before said substantially vertically extending hollow surfaces engage said part cylindrical hollow columns to be arrested thereby.

4,383,953

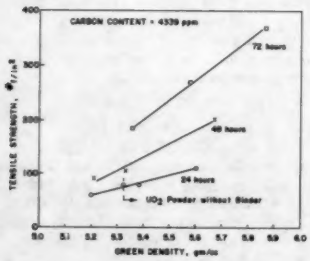
METHOD OF IMPROVING THE GREEN STRENGTH OF NUCLEAR FUEL PELLETS

Richard I. Larson, and Henry C. Brassfield, both of Wilmington, N.C., assignors to General Electric Company, San Jose, Calif.

Continuation-in-part of Ser. No. 113,626, Jan. 21, 1980, abandoned. This application Jul. 6, 1981, Ser. No. 280,490

Int. Cl.³ G21C *21/00*

U.S. Cl. 264—0.5 **21 Claims**



1. A method of preparing an admixture comprising a particulate material and a fugitive binder for producing green pellets free of flaws and having improved strength, comprising the steps of :

(a) fluidizing and agitating a mass of particulate material with a fluidized bed system;

(b) adding a fugitive binder to the fluidizing and agitating mass of particulate material and blending the binder with the particulate material, said fugitive binder being comprised of ammonium bicarbonate, ammonium carbonate, ammonium bicarbonate carbamate, ammonium sesquicarbonate, ammonium carbamate, and mixtures thereof;

(c) aging the blended binder and particulate material for a period of greater than 48 hours; and

(d) forming the resulting aged blend by pressing into a green body.

4,383,954

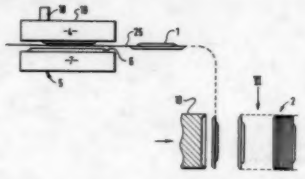
FORMING AND DELIVERING STACKABLE ARTICLES

Edward W. Rider, Jr., Matamoras, Pa., assignor to Genpak Corporation, South Glen Falls, N.Y.

Continuation of Ser. No. 22,777, Mar. 22, 1979, abandoned. This application Apr. 6, 1981, Ser. No. 251,121

Int. Cl.³ B29C *17/02, 17/04*

U.S. Cl. 264—40.5 **7 Claims**



1. A method of continuously forming stackable articles in a moulding machine and forming a stack of said articles easily identifiable as to equally numbered batches of said stack comprising,

(a) feeding a sheet of mouldable material along a pass line and through a moulding station of the machine; said machine having a plunger as a part of and flush with a mould surface when making identically moulded stackable articles;

(b) repeating a cycle of a moulding operation to make a predetermined number of identical articles in succession;

(c) stacking said identically moulded articles;

(d) thereafter during the repeating cycle of moulding at least one article, following the moulding operation making a predetermined number of identical articles, moving said plunger from said mould surface to alter said mould surface configuration and subject said article to an additional moulding treatment so that said additionally moulded article is easily identifiable from said identically moulded articles;

(e) placing said additionally moulded article in said stack; and

(f) continuously repeating steps (a), (b), (c), (d) and (e).

4,383,955

PROCESS FOR FABRICATING A CLOSED, FOAM-FILLED, REINFORCED POLYESTER RESIN SHELL ARTICLE

Marcelino Rubio, 7336 Bequette Ave., Pico Rivera, Calif. 90660, and James A. Mizell, 14482 Shattle La., Huntington Beach, Calif. 92646

Filed Aug. 24, 1981, Ser. No. 295,609

Int. Cl.³ B29D *27/04*

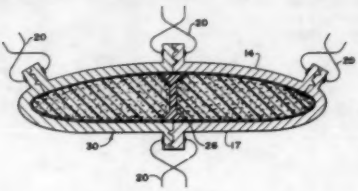
U.S. Cl. 264—46.6 **8 Claims**

1. A process for fabricating a closed, foam-filled, reinforced polyester-surfaced object, such as a surfboard, said process comprising the steps of:

disassembling a mold into at least four parts so that the surface of each part is readily accessible to be sprayed by a resin spray gun the joint between the parts being positioned away from the outer edge of the reinforced polyester-surfaced object;

coating the surface of each part of the mold with a liquid resin and reinforcing material and allowing the liquid resin to at least partially cure;

assembling some of the mold parts to form one of the halves of the desired object;
assembling the remaining mold parts to form the other half of the desired object;
pouring a prefoam mix into each of the mold halves;
inserting a baffle member across the entire upper surface of the mold halves before the prefoam has commpletely risen said baffle member having at least one hole therethrough;
allowing the prefoam to rise and allowing a portion thereof to pass through the hole in the baffle member;



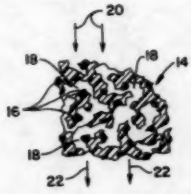
removing the baffle member;
cutting out a portion of the upper surface of the foam so that when the two halves are joined, a generally I-beam shaped hollow depression is formed between the mold halves;
supporting the two mold halves into the desired final orientation while pouring a joining resin into the generally I-beam shaped depression; and
permitting the joining resin to cure to form a final part.

4,383,956

METHOD OF A SINGLE ELEMENT COMPLETE AIR FILTERING STRUCTURE FOR A RESPIRATOR FILTER CARTRIDGE

George T. Croft, Fiskdale, and Richard J. Hovey, Sturbridge, both of Mass., assignors to American Optical Corporation, Southbridge, Mass.

Filed Jan. 30, 1981, Ser. No. 230,132
Int. Cl.³ B29D *27/00*; B01D *39/14, 53/14*; B01J *20/04*
U.S. Cl. 264—49 **5 Claims**



1. The method of making a single element complete air filtering structure for a respirator filter cartridge comprising the steps of:
preparing a casting precursor of polymeric material and including in said casting precursor a leachable additive;
casting said precursor to a shape and size desired of said single element structure;
leaching said leachable additive from said material to form an open pore matrix structure; and
introducing a toxic gas neutralizing agent into said matrix structure prior to or subsequent to casting and leaching.

4,383,957

METHOD OF SINTERING A CERAMIC COMPOSITION

Akira Yamakawa; Akira Doi, and Yoshihiko Doi, all of Itami, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed May 20, 1981, Ser. No. 265,569
Claims priority, application Japan, May 29, 1980, 55-70731
Int. Cl.³ C04B *35/58*
U.S. Cl. 264—65 **5 Claims**

1. A method of sintering a ceramic material which comprises sintering at a temperature of 1200° to 2000° C., a ceramic composition comprising oxides selected from the group consisting of Al_2O_3, ZrO_2 and mixtures thereof as a substantial or partial component in an atmosphere of CO gas or mixed gases of CO gas and an inert gas, wherein the partial pressure of the CO gas ranges from 5 mm Hg to 760 mm Hg.

4,383,958

METHOD OF PRODUCING DENSE SILICON NITRIDE CERAMIC ARTICLES HAVING CONTROLLED SURFACE LAYER COMPOSITION

Anthony P. Moschetti; J. Thomas Smith; Carr L. W. Quackenbush, all of Acton; Helmut Lingertat, Dorchester, all of Mass., and Vincent W. Nehring, Stillwater, Minn., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Filed Dec. 21, 1981, Ser. No. 333,235
Int. Cl.³ C04B *35/58*
U.S. Cl. 264—65 **9 Claims**

1. A method of producing dense, polycrystalline silicon nitride articles having surface layers of controlled composition comprising the steps of:
(a) providing a finely divided mixture of from about 80 mole percent to about 95 mole percent silicon nitride, from about 2 mole percent to about 10 mole percent silicon dioxide and from about 2 mole percent to about 15 mole percent yttrium oxide;
(b) pressing the mixture to form a sinterable compact;
(c) embedding the sinterable compact in a non-sinterable setter bed powder mixture of a composition different from that of the powder compact, with a content of from about 48 mole percent to about 94 mole percent silicon nitride, the balance consisting essentially of yttrium oxide and silicon dioxide wherein the mole ratio of yttrium oxide to silicon oxide is between 0 and about 2; and
(d) heating the sinterable compact and nonsinterable setter bed powder mixture at a temperature and for a period sufficient to sinter the compact to a densified composite article having a density of at least 98% of theoretical, wherein said step of heating is carried out in a nitrogen atmosphere at a pressure which is related to the temperature of heating by the expression:

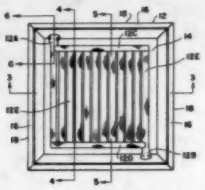
$$P = e^{[(-a/T)+b]}$$

where P is the pressure in atmospheres, T is the absolute temperature in degrees Kelvin, and a and b are constants which have the values of about 2.9×10^4 and about 15.43, respectively, to substantially inhibit the thermal decomposition and volatilization of silicon nitride at said temperature.

4,383,959
SOLAR HEATER

Charlton Sadler, P.O. Box 446, Brookville, Fla. 33512

Division of Ser. No. 921,053, Jun. 30, 1978, Pat. No. 4,170,983.
This application Feb. 7, 1979, Ser. No. 10,075
Int. Cl.³ F24J 3/02
U.S. Cl. 264—86 9 Claims



1. The method of forming a solar collector, comprising in combination:

positioning a first and a second mold element relative to one another to form a mold cavity which defines the outer configuration of the solar collector;

filling the mold cavity with a curable material;

draining the mold cavity prior to complete curing of the curable material thereby removing the uncured material to define the internal configuration of the solar collector;

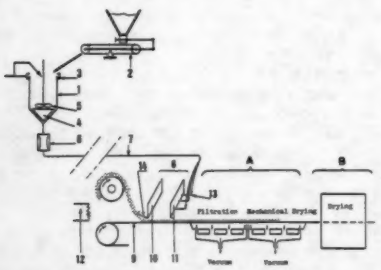
removing the solar collector from the mold cavity; and

securing a transparent covering to the solar collector.

4,383,960
PROCESS AND MECHANISM FOR THE ELIMINATION OF EXCESS WATER FROM A MIXTURE OF PLASTER AND WATER, AND THE PRODUCT OBTAINED

Adrien Deicoigne, 25 avenue Marie-Amelie, 60500 Chantilly, and Jacques Lanneau, 24 Residence "La Belle Fontaine", 60600 Breuil Le Vert, both of France

Filed Jun. 4, 1981, Ser. No. 270,228
Claims priority, application France, Jun. 18, 1980, 80 13497
Int. Cl.³ B28B 1/26
U.S. Cl. 264—87 20 Claims

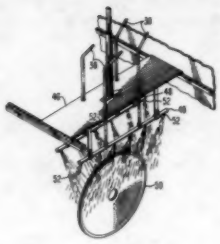


1. Process for elimination of the excess water contained in continuous ribbons, obtained by shaping a mixture consisting essentially of hydratable calcium sulphate, water, required to hydrate said sulphate, and an excess of water beyond that required for total hydration of said sulphate, wherein the improvement comprises shaping a mixture essentially of hydratable calcium sulphate and water, and beginning thermic drying of said ribbon to completion of hydration of said sulphate, and continuing said thermic drying until said excess water is in the range of 1–5%.

4,383,961
DRYING PROCESS FOR VIDEO DISCS

Frederick R. Nyman, Carmel; Barry Stevens, Indianapolis, both of Ind., and Lincoln Ekstrom, Princeton, N.J., assignors to RCA Corporation, New York, N.Y.

Filed Jul. 7, 1980, Ser. No. 165,977
Int. Cl.³ B29D 17/00
U.S. Cl. 264—107 5 Claims

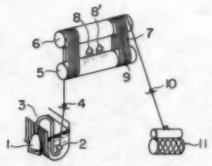


1. In a process of manufacturing high density information discs which comprises compression molding the discs and removing surface contaminants by means of an aqueous rinse step, the improvement consisting essentially of drying the surface of the discs by first removing surface moisture with a liquid fluorocarbon spray which mechanically scrubs the disc surface to remove water droplets, maintaining the disc in fluorocarbon vapor until the disc temperature reaches the vapor temperature, and thereafter removing the discs from the vapor thereby preventing recondensation of moisture on the disc surface.

4,383,962
PROCESS FOR PRODUCING VISCOSE RAYON FILAMENT YARN

Yasuo Isome; Toshio Minami, and Tadahiko Takahashi, all of Nobeoka, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan and Snia Viscosa S.p.A., Milan, Italy

Filed Sep. 17, 1980, Ser. No. 187,935
Claims priority, application Japan, Sep. 27, 1979, 54-123114; Oct. 8, 1979, 54-128890
Int. Cl.³ D01F 2/06
U.S. Cl. 264—196 10 Claims



1. In the process for producing a viscose rayon filament yarn by the continuous spinning process by ejecting viscose from a spinning nozzle, coagulating and regenerating it and then scouring and drying it, the improvement which comprises spinning a viscose having a sulfur content of sulfur oxides and polysulfides of 0.55% by weight, based on the weight of cellulose, or less, then completing the regeneration and deswelling of the yarn by providing a standing time expressed by the following equation, and thereafter washing it with water and drying:

$$7.5D_M+15 \leqq T_t \leqq 10D_M+25$$

wherein D_M is denier of the monofilament constituting the

rayon filament yarn to be spun, and T_s is standing time, expressed in seconds, of the viscose filament spun.

4,383,963

PROCESS FOR ANNEALING HEAT FUSED CAST REFRACTORY PRODUCT

Koji Ohashi; Yutaka Hosoda, and Toshio Kitamura, all of Takasago, Japan, assignors to Asahi Glass Company Ltd., Tokyo, Japan

Filed Apr. 9, 1981, Ser. No. 252,389
Claims priority, application Japan, May 2, 1980, 55-57772
Int. Cl.³ B29C *1/02*
U.S. Cl. 264—235 **9 Claims**

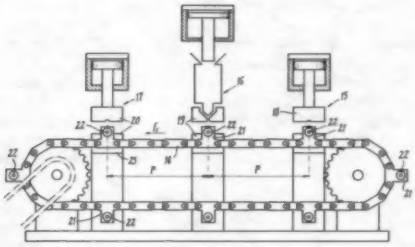
1. In a process for annealing a heat fused cast refractory product by casting a molten refractory material in a sand mold which is held in a heat insulating material as an annealing medium, an improvement characterized in that said mold is held in said packed heat insulating material which has a thermal conductivity ranging from 0.04 to 0.3 Kcal/m.hr. °C. (at 200° C.) as a heat insulating property and a contraction coefficient of upto 45% under a pressure of 50 Kg/cm^2 as a mechanical strength for supporting a mold.

4,383,964

PROCESS AND MACHINE FOR OVER-MOLDING CONNECTORS ON ELECTRICAL CONDUCTORS

Henryk Prus, 2, square Francois Couperin, Antony, France

Filed Mar. 25, 1981, Ser. No. 247,276
Claims priority, application France, Mar. 31, 1980, 80 07185
Int. Cl.³ B29D *3/00*; B29C *1/00*
U.S. Cl. 264—237 **9 Claims**



1. A process for over-molding connectors with a thermoplastic material, said connectors being previously positioned on tip ends of electrical conductors, wherein said over-molding is carried out in an injection press having a first injection mold into which is introduced the connector affixed to its conductor to produce an over-molded connector by injection molding, wherein the over-molded connector is extracted from the first cavity mold at a temperature at which the thermoplastic material is still hot and wherein the over-molded connector is transferred into a second mold of a second press which is of exactly the shape of the injection mold, said second mold being maintained at a temperature lower than that of the first injection mold of the injection press and less than that at which it would be possible to make an injection molding of the thermoplastic material, the transferring of the over-molded connector from the first injection mold of the injection press to the second mold of the second press being sufficiently rapid to prevent a substantial deformation of the thermoplastic material which is still not solidified, the thermoplastic material being then re-molded in the mold of the second press.

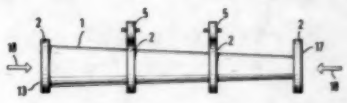
4. A machine for the over-molding of a thermoplastic material on connectors crimped on the stripped end of conductors in a crimping machine, said overmolding machine comprising a conveyor extending from the crimping machine, which conveyor carries the connectors to a first station, mean at the first station to position a core at portions of the connector which have to be protected from over-molding and then carries the connectors to a second station, said second station comprising an injection press having a first injection mold into which the connector affixed to its conductor and associated with a core is introduced, the injection press being maintained at a suitably high temperature to enable introduction therein of an over-molding thermoplastic material to produce an over-molded connector by injection molding, said first injection mold opening while the injected material still is hot and not yet solidified, and said over-molded connector being extracted from the opened first injection mold and transferred to a third station comprising a press including a second mold which is of exactly the shape of the injection mold, said second mold being maintained at a temperature lower than that of the first injection mold of the injection press and less than that at which it would be possible to make an injection molding of the thermoplatic material, the transferring of the over-molded connector from the first injection mold of the injection press to the second mold of the second press being sufficiently rapid to prevent a substantial deformation of the thermoplastic material which is still not solidified, the thermoplastic material then being re-molded in the mold of the second press.

4,383,965

CENTRIFUGAL PROCESS FOR THE PRODUCTION OF A PIPE-SHAPED BODY AND A PIPE-SHAPED BODY PRODUCED ACCORDING TO THE CENTRIFUGAL PROCESS

Bruno Rother, Neumarkt, and Hartmut Trommen, Posthauer-Heng, both of Fed. Rep. of Germany, assignors to G.A. Pfleiderer GmbH & Co., KG, Neumarkt, Fed. Rep. of Germany

Filed Jan. 29, 1981, Ser. No. 229,409
Claims priority, application Fed. Rep. of Germany, Aug. 7, 1980, 3029918
Int. Cl.³ B29D *3/02, 23/08*; B29G *7/00*; B29C *5/04*
U.S. Cl. 264—257 **7 Claims**



1. A process for the production of a tapered pipe-shaped body formed of a synthetic resin with a reinforcement comprising a fibrous layer and an overlying mat permeable by the synthetic resin and substantially impenetrable by fibers in the fibrous layer, the process comprising the steps of:

(a) providing a mold having an inner wall the shape of which substantially conforms to the outer surface of said tapered pipe-shaped body;

(b) inserting said reinforcement into said mold such that the mat portion thereof generally loosely abuts the inner wall of said mold;

(c) injecting the synthetic resin into said mold;

(d) rotating said mold about its longitudinal axis;

(e) causing said synthetic resin to penetrate said fibrous layer and said mat;

(f) disposing said reinforcement at a position spaced from the inner wall of said mold by utilizing said mat with a specific gravity less than that of said synthetic resin such that said reinforcement thereby floats on the outer layer of said synthetic resin as said mold is rotated;

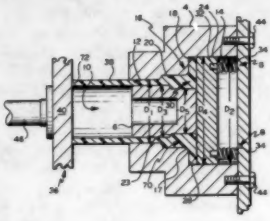
(g) preventing fibers in said fibrous layer from penetrating to the inner wall of said mold by utilizing said mat which is impenetrable by the fibers in said fibrous layer; and

(h) forming a substantially homogeneous outer surface of pure synthetic resin on said tapered pipe-shaped body to thereby provide an outer surface on said tapered pipe-shaped body which is substantially smooth and pore-free.

4,383,966
METHOD AND APPARATUS FOR FORMING A FLANGE ON THERMOPLASTIC TUBING

Harvey E. Svetlik, Dallas, Tex., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jun. 29, 1981, Ser. No. 278,130
Int. Cl.³ B29C *17/00*; B29D *23/00*; B29C *1/12*
U.S. Cl. 264—296 14 Claims



1. A method for forming a flange on the end of a thermoplastic pipe, said method comprising

(a) positioning a first end of a thermoplastic pipe in a first generally tubular portion of a mold cavity formed between a die and a mold, said mold cavity having a closed end formed by a portion of the die;

(b) urging at least one of the first end of the thermoplastic pipe and the die portion forming the closed end of the cavity toward the other with sufficiently great a force to move the portion of the die forming the end of the mold cavity to form a second generally tubular portion of the mold cavity connected to the first generally tubular portion of the mold cavity; and

(c) flowing the first end of the pipe into the second generally tubular portion of the mold cavity as it is formed.

4,383,967
AUTOMATIC FINISHING CHIP PROCESS

Gunther W. Balz, Kalamazoo, Mich., assignor to Roto-Finish Company, Inc., Kalamazoo, Mich.

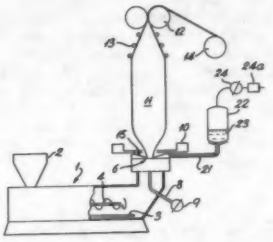
Division of Ser. No. 212,754, Dec. 4, 1980, Pat. No. 4,349,327. This application Jul. 1, 1982, Ser. No. 394,256
Int. Cl.³ B29C *5/04*
U.S. Cl. 264—310 20 Claims

1. Method of producing finishing chips comprising the steps of providing a castable mixture of particulate abrasive grains and a solidifiable matrix, depositing the mixture into cavities of a generally cylindrical flexible mold having a plurality of cavities in the interior surface thereof conforming to the desired configuration of finishing chips to be produced, rotating said cylindrical mold during solidification of said mixture and the production of solid finishing chips within said cavities, and ejecting said solidified finishing chips from said mold by bringing said mold to an inside-out position, whereby said solidified finishing chips are ejected from said cavities.

4,383,968
METHOD AND APPARATUS FOR PRODUCING MULTI-LAYER EXPANDED FILMS

Stephen H. Joseph, London; John E. Miller, Leigh-on-Sea, and Lawrie A. Williamson, Colchester, all of England, assignors to National Research Development Corporation, London, England

Filed Jun. 22, 1981, Ser. No. 276,252
Claims priority, application United Kingdom, Jun. 20, 1980, 8020314
Int. Cl.³ B29C *13/00*, *17/07*
U.S. Cl. 264—503 8 Claims



1. A method of forming multi-layer expanded film, comprising:

extruding through an extrusion die a base film comprising at least one layer;

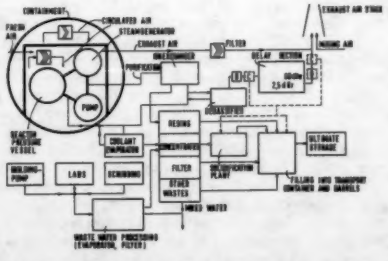
causing fluid supplied from a manifold to be propelled through a metering orifice with a flow motion having at least a substantial component in a direction normal to the extrusion axis of said extrusion die;

causing said fluid once thus expelled and with said flow motion to meet a surface of said extruded base film closely downstream of said extrusion die and before any substantial degree of said expansion has taken place, and within a distance from the mouth of said metering orifice that is not substantially greater than the thickness of said extruded base film at the point of said meeting, whereby to form at least one further layer on said surface of said base film.

4,383,969
METHOD FOR REMOVING RADIOACTIVE CARBON PRODUCED IN NUCLEAR POWER PLANTS

Alois Bleier, Erlangen, Fed. Rep. of Germany, assignor to Kraftwerk Union Aktiengesellschaft, Mülheim, Fed. Rep. of Germany

Filed Oct. 28, 1980, Ser. No. 201,574
Claims priority, application Fed. Rep. of Germany, Nov. 13, 1979, 2945771
Int. Cl.³ G21C *19/42*
U.S. Cl. 376—313 11 Claims



1. Method for the removal of the small amounts of carbon

monoxide, carbon dioxide and gaseous alkanes in which the compounds have radioactive carbons, produced in nuclear power stations and contained in the exhaust gases of the purification plant, which comprises subjecting exhaust gases containing the mixture of carbon monoxide, carbon dioxide and gaseous alkanes in which the compounds have radioactive carbons, to oxidation to effect substantially complete conversion of the mixture of the radioactive compounds to radioactive carbon dioxide, and subsequently removing substantially all said radioactive carbon dioxide from the exhaust gases containing it.

4,383,970

PROCESS FOR PREPARATION OF GRAPHITE-CONTAINING ALUMINUM ALLOYS

Katsuhiro Komuro, Hitachi; Masateru Suwa, Tokai; Koh Soeno, and Masato Ohsawa, both of Hitachi, all of Japan, assignors to Hitachi, Ltd. and Hitachi Chemical Company, Ltd., both of Tokyo, Japan

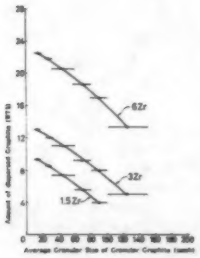
PCT No. PCT/JP79/00211, § 371 Date Apr. 11, 1980, § 102(e) Date Apr. 11, 1980, PCT Pub. No. WO80/00352, PCT Pub. Date Mar. 6, 1980

PCT Filed Aug. 9, 1979, Ser. No. 196,044

Claims priority, application Japan, Aug. 11, 1978, 53-97227

Int. Cl.³ C22C *1/02*

U.S. Cl. 420—528 **22 Claims**



1. A process for preparation of graphitecontaining aluminum alloys by incorporating graphite into an aluminum or aluminum alloy melt, comprising the steps of incorporating at least one additive element selected from the group consisting of titanium, chromium, zirconium, nickel, vanadium, cobalt, mananese, and niobium in the range of 1.5~20% by weight into aluminum or an aluminum alloy melt; then, incorporating graphite particles, without a metal coating, into the melt in an amount of 2~30% by weight and dispersing the graphite particles into the melt; and thereafter, solidifying the aluminum or aluminum alloy melt containing the graphite particles; said graphite particles being dispersed within the solidified melt.

4,383,971

METHOD OF CONTROLLING THE SURFACE INTEGRITY OF PILED COAL

D. Howard Sherman, 2200 Mayer Rd., St. Clair, Mich. 48079

Filed May 11, 1981, Ser. No. 262,392

Int. Cl.³ B01J *19/00*; C10L *5/00, 10/00*

U.S. Cl. 422—40 **29 Claims**

1. A method of controlling the surface integrity of piled coal against erosion, surface combustion and the like comprising the steps of depositing on at least a portion of the piled coal surface a mulch of fibrous organic material in discrete lengths of not less than three inches in random fiber orientations over said portion of said surface and spraying over said portion of said surface a mulch adhesive in an amount sufficient to form a self-adhesive water and air permeable carpet of said mulch covering said portion of said surface and through which said portion of said surface is substantially invisible.

4,383,972

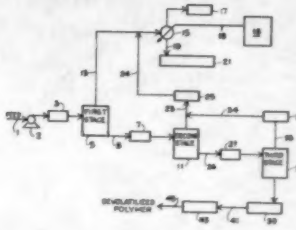
APPARATUS FOR THE MULTIPLE STAGE DEVOLATILIZATION OF MASS PROCESSABLE POLYMERS

J. L. McCurdy, Corona Del Mar, and Marvin A. Jarvis, Walnut, both of Calif., assignors to Polymer Research, Inc., Big Spring, Tex.

Division of Ser. No. 25,736, Mar. 30, 1979, abandoned. This application Jul. 15, 1981, Ser. No. 283,405

Int. Cl.³ C08F *6/06*; B01J *12/02*

U.S. Cl. 422—131 **9 Claims**



1. A multi-stage vacuum flash devolatilization apparatus for removing volatiles from a thermoplastic polymer material comprising a mass processable polymer containing said volatiles to produce a polymeric material containing less than about 0.1% by weight of volatiles, said apparatus comprising:

(a) means for heating said thermopalstic polymeric material to a temperature at least above its softening point but below its degredation temperature;

(b) a first flash devolatilization zone connected for receiving polymeric material from said heating means;

(c) means for maintaining said first flash devolatilization zone at a first sub-atmospheric pressure sufficient to vaporize and remove a major portion of said volatiles from said polymeric material but which is above the pressure at which mechanical refrigeration is needed to condense the vaporized volatiles, whereby there can be produced in said first flash devolatilization zone a partially devolatilized thermoplastic polymeric material;

(d) means for withdrawing a first stream of vaporized volatiles at said first sub-atmospheric pressure from said first flash devolatilization zone;

(e) a second flash devolatilization zone;

(f) means for feeding said partially devolatilized thermoplastic polymeric material to said second flash devolatilization zone;

(g) means for maintaining said second flash devolatilization zone at a second sub-atmoshperic pressure which is below about 5 mm Hg and said first sub-atmospheric pressure of said first flash devolatilization zone and which is sufficient to vaporize and remove the remaining amount of said volatiles from said polymeric material to produce a finally devolatilized thermoplastic polymeric material containing less than about 0.1% by weight of volatiles;

(h) means for withdrawing a second stream of vaporized volatiles at said second sub-atmospheric pressure from said second flash devolatilization zone;

(i) means for feeding the second stream of volatiles from said second flash devolatilization zone into the first stream of volatiles withdrawn from said first flash devolatilization zone, to produce a combined stream of volatiles at said first sub-atmospheric pressure;

(j) means defining a source of cooling water which supplies said cooling water at a temperature which is sufficiently low to condense the combined stream of volatiles at said first sub-atmospheric pressure;

(k) means, comprising a condenser, for condensing the combined stream of volatiles at said first sub-atmospheric

pressure by contacting said combined stream with a heat transfer surface which has been cooled by said cooling water; and

(l) means for supplying cooling water from said water source means to said condenser whereby said means defining said source of water, said condenser and said cooling water supply means lacks any means for mechanical refrigeration.

4,383,973

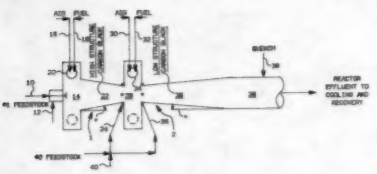
PROCESS AND APPARATUS FOR MAKING CARBON BLACK

Paul J. Cheng, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 163,006, Jun. 25, 1980, Pat. No. 4,327,069. This application Aug. 17, 1981, Ser. No. 293,074

Int. Cl.³ C01B *31/02;* C09C *1/48*

U.S. Cl. 422—151 9 Claims



1. A furnace for producing carbon black of low tint residual by pyrolytic decomposition of hydrocarbons comprising

(a) a first carbon black reactor comprising in axial alignment

(1) means defining a first precombustion section having an upstream and a downstream end and being of essentially cylindrical shape,

(2) means defining a first reaction section having an upstream and a downstream end being a tapering reaction zone connected with its upstream opening of larger diameter to the downstream end of the first precombustion section and being connected with its downstream opening of smaller diameter with the upstream end of the second precombustion section defined below,

(3) first hydrocarbon inlet means for injecting hydrocarbon feedstock into said first carbon black reactor,

(4) first hot combustion gas inlet means for injecting hot combustion gases into said first carbon black reactor,

(b) in axial alignment and open communication with said first carbon black reactor a second carbon black reactor comprising

(1) means defining a second precombustion section having an upstream end and a downstream end, said second precombustion section being of essentially cylindrical shape,

(2) means defining a second reaction section having an upstream end and a downstream end, said second reaction section having a tapering shape and being connected with its upstream opening having a smaller diameter with the downstream end of said second precombustion section the downstream end of said second reaction section having the larger diameter,

(3) second hydrocarbon inlet means for injecting hydrocarbon feedstock into said second carbon black reactor,

(4) second hot combustion gas inlet means for injecting hot combustion gases into said second carbon black reactor,

(c) connected to the downstream end of said second reaction section a carbon black smoke withdrawal conduit with the further proviso that one of said first and second carbon black reactors is designed for high structure carbon black production and the other is designed for low structure carbon black production.

4,383,974

CATALYTIC WASTE GAS CONVERTER FOR COMBUSTION MACHINES

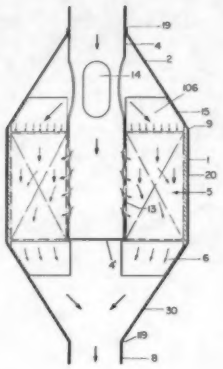
Gerhard Fratzer, and Bernhard Beck, both of Rheinfelden, Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Division of Ser. No. 203,673, Nov. 3, 1980. This application Jun. 23, 1982, Ser. No. 391,355

Claims priority, application Fed. Rep. of Germany, Nov. 7, 1979, 2944841

Int. Cl.³ B01D *53/36;* F01N *3/28*

U.S. Cl. 422—176 11 Claims



1. A catalytic waste gas converter suitable for the use with an internal combustion engine or a diesel engine comprising in combination a cylindrical housing with gas inlet means at one end thereof and gas withdrawal means at the other end thereof, a first conical cover at the gas inlet end of the housing and a second conical cover at the gas withdrawal end of the housing, a gas supply tube passing through the cover on the gas inlet end of the housing and extending up to the plane of a first transition between the cylindrical housing and the cover at the gas withdrawal end of the housing, said gas supply tube being closed at the end thereof, the section of the gas supply tube before a second transition between the housing and the cover at the gas inlet of the housing having openings at the circumference and the section of the gas supply tube lying below said second transition having perforations, a coil surrounding the perforated section of the gas supply tube and being made of catalyst coated, alternating smooth and undulating layers of a high temperature and scale resistant steel screen, said coil being supported on its downstream face by flange means fastened to the cover on the gas withdrawal side and on its upstream face by flange means fastened to the cover on the gas inlet side, an insulation layer disposed on the periphery of said coil, said coil and insulation layer being in the form of a roll in the cylindrical housing and a gas withdrawal tube attached to the cover on the gas withdrawal end of the housing.

4,383,975

CATALYTIC WASTE GAS CONVERTER FOR COMBUSTION MACHINES

Gerhard Fratzer, and Bernhard Beck, both of Rheinfelden, Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Division of Ser. No. 203,673, Nov. 3, 1980. This application Jun. 23, 1982, Ser. No. 391,359

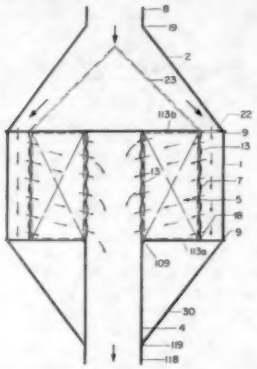
Claims priority, application Fed. Rep. of Germany, Nov. 7, 1979, 2944841

Int. Cl.³ B01D *53/36;* F01N *3/28*

U.S. Cl. 422—176 12 Claims

1. A catalytic waste gas converter suitable for use with an

internal combustion engine comprising in combination a cylindrical housing with gas inlet means at one end thereof and gas withdrawal means at the other end thereof, a first conical cover at the gas inlet end of the housing and a second conical cover at the gas withdrawal end of the housing, a first circular holding plate fastened at the transition between the cylindrical housing and the cover on the gas inlet end thereof, said holding plate having an annular outer section provided with gas inlet openings, and a second circular holding plate providing a circular bore, means for fastening said second holding plate at its periphery at the transition between the cylindrical housing and the cover on the gas outlet end thereof, a gas withdrawal tube extending in said bore up to the first holding plate and out



of the cover on the gas withdrawal end of the housing, the section of the withdrawal tube between the two holding plates being perforated, a coil surrounding the perforated section of the gas withdrawal tube and extending between said holding plates, said coil being made of catalyst coated alternating smooth and undulating layers of a high temperature and scale resistant steel screen, said coil having a cross section smaller than the cross section of the second holding plate in order to form a gas flow channel between the coil and the wall of the housing, a perforated cylinder disposed on the periphery of the coil, a gas supply tube connected to the first conical cover on the gas inlet end of the housing and a conically shaped flow divider in said first conical cover, said divider covering said first holding plate up to its gas inlet openings.

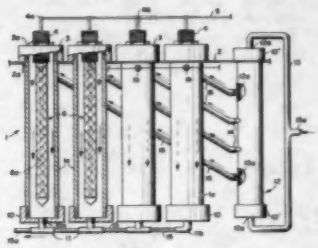
4,383,976

OZONE-GENERATING ASSEMBLY

Salvador P. Notaro, Pico 2347, 1429 Buenos Aires, Argentina

Filed Apr. 1, 1980, Ser. No. 136,382
Claims priority, application Argentina, Dec. 27, 1979, 279484
Int. Cl.³ C01B *13/11*
U.S. Cl. 422—186.18 **1 Claim**

1. An improved assembly for generating ozone, of the type comprising ozone generating tubes (6) provided with a rod electrode (6*a*) mounted inside said tubes and connected to a first terminal (4*a*) of an electric current supply, said tubes (6) covered by a metal mesh connected to a second terminal (7*c*) of the power supply, said generating tubes (6) housed within corresponding hermetic receptacles (1) including upper and lower covers (3,10) said receptacles (1) connected to a source of supply (12) of air or oxygen and said lower covers provided with outlet orifices (10*a*) connected to an ozone discharge conduit (15), characterized by a support (4) connected to said first terminal (4*a*) of said rod electrode (6*a*), said support comprising a rigid plastic cylindrical sleeve (4') provided with an outside thread (4''), one end of said support provided with an annular seat, a plastic disc (d) fitted in said seat, said first terminal (4*a*) inserted in said disc and connected to said rod electrode (6*a*), a pair of nuts (4''') securing said sleeve (4') to the cover (3) of said hermetic receptacles for said generator tubes (6), the metal mesh of the generator tubes (6) being in turn connected to the wall of said receptacle (1) by means of a helical spring (7*b*) affixed to the end of a threaded connector



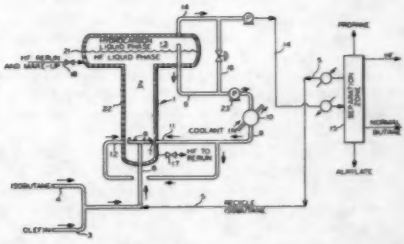
(7*a*) and connected to the second current supply terminal (7*c*), a distributor (12), riser tubes (16) connecting said distributor to each of said receptacles (1) and demountable couplings (9) connecting the end of each said riser tubes (16) to said receptacles (1) and to the distributor (12).

4,383,977

CATALYTIC ALKYLATION APPARATUS WITH HYDROCARBON RECYCLE

Thomas Hutson, Jr.; Donald J. Makovec, and Alden E. Beckworth, all of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 81,290, Oct. 2, 1979, Pat. No. 4,276,439.
This application Feb. 18, 1981, Ser. No. 235,484
Int. Cl.³ F28D *7/00*
U.S. Cl. 422—235 **13 Claims**



1. Alkylation apparatus for the catalytic alkylation of a hydrocarbon feed, the apparatus comprising:

a vertically-elongated reaction vessel having an upper portion and a lower portion;

a settling vessel having an upper portion and a lower portion, said lower portion being in open communication with the upper portion of the reaction vessel;

at least one first conduit means for removing fluid from the upper portion of the settling vessel and introducing at least a portion of said fluid directly into the lower portion of the reaction vessel without prior contact with hydrocarbon feed; and

means operatively associated with said first conduit means for reducing the temperature of said fluid removed from the upper portion of the settling vessel prior to the introduction of said fluid into the lower portion of the reaction vessel.

4,383,978

PROCESS OF OBTAINING URANIUM AND URANIUM COMPOUNDS FROM PHOSPHORIC ACID

Klaus Beltz, Budenheim; Klaus Frankenfeld, Huenfelden; Rainer Lehmann, Limeshain, and Inge Zintl, Mainz-Finthen, all of Fed. Rep. of Germany, assignors to Chemische Fabrik Budenheim, Budenheim, Fed. Rep. of Germany

Filed Dec. 19, 1980, Ser. No. 218,032

Claims priority, application Fed. Rep. of Germany, Dec. 27, 1979, 2952475

Int. Cl.³ C01G *43/00*

U.S. Cl. 423—9 12 Claims

1. A process for obtaining uranium and uranium compounds from phosphoric acid, comprising the steps of:

contacting aqueous phosphoric acid containing uranium in the dissolved state with an amine selected from a long-chain alkylamine polyphosphate, an alkylamine metaphosphate compound or a mixture thereof dissolved in an organic solvent which is insoluble in water, wherein the alkyl portion of said alkylamine contains between about 8 and 30 carbon atoms and corresponds to the formula

wherein R_1 and R_2 denote hydrogen or alkyl and R_3 denotes alkyl, and wherein the polyphosphate or metaphosphate portion of said amine comprises from about 2 to 10,000 phosphorus atoms per molecule, said contacting being carried out in the presence of an amount of Fe^{II} ions sufficient to promote substantial transfer of uranium from the aqueous phase into the organic phase; and

recovering the uranium from the organic phase.

4,383,979

PROCESS FOR THE RECOVERY OF ZINC, COPPER AND CADMIUM IN THE LEACHING OF ZINC CALCINE

Jussi K. Rastas, Pori; Lars-Göran Björkqvist, Kokkola, both of Finland; Raija-Leena Gisler, Altdorf, Switzerland, and Simo S. Liukkonen, Espoo, Finland, assignors to Outokumpu Oy, Helsinki, Finland

Continuation of Ser. No. 933,653, Aug. 15, 1978, abandoned. This application Aug. 26, 1980, Ser. No. 181,651

Claims priority, application Finland, Aug. 18, 1977, 772468

Int. Cl.³ C01G *3/10, 9/06, 11/00, 49/00*

U.S. Cl. 423—36 6 Claims

1. In a hydrometallurgical process for the treatment of a raw material containing an oxide and a ferrite of one or more of the non-ferrous metals zinc, copper and cadmium, comprising neutral leaching said raw material with a sulfuric acid bearing solutin to produce ferritic solid material and a sulfate solution of the non-ferrous metal, separating said sulfate solution from said ferritic solid material to recover the non-ferrous metal from said solution, treating said ferritic solid material in a ferrite treatment stage with additional sulfuric acid bearing solution in the presence of an ion of potassium, sodium or ammonium under atmospheric pressure at a temperature of about 80° C. to 105° C. to precipitate iron from the ferritic material in the form of jarosite and a solution containing dissolved non-ferrous metal and returning said solution to the neutral leaching stage, wherein the improvement comprises classifying the ferritic solid material from said neutral leaching stage into a finer fraction and a coarser fraction, substantially all of the particles in said finer fraction having a particle size under 37 μm and most of said coarser fraction being in the form of particles larger than 37 μm, feeding the finer fraction to said ferrite treatment stage, comminuting said coarser fraction and recycling the comminuted fraction to the ferrite treatment stage.

4,383,980

PROCESS FOR EXTRACTING TUNGSTEN AND MOLYBDENUM VALUES FROM SOLUTION

Martin B. Dines, Santa Ana, Calif., assignor to Occidental Research Corporation, Irvine, Calif.

Filed Dec. 9, 1980, Ser. No. 214,811

Int. Cl.³ C01G *39/00, 41/00*

U.S. Cl. 423—54 12 Claims

1. A process for extracting a dissolved metal ion selected from the group consisting of tungstate and molybdate from a solution which comprises contacting said solution having pH of at least about 6 with an inorganic oxide adsorbent selected from the group consisting of iron and manganese oxides, and adsorbing said metal ion on said inorganic oxide adsorbent.

4,383,981

PROCESS FOR THE SEPARATION OF CRYSTALLINE SILICATES

Willibrord A. van Erp, and Otto M. Velthuis, both of Amsterdam, Netherlands, assignors to Shell Oil Company, Houston, Tex.

Filed Jan. 28, 1982, Ser. No. 343,674

Claims priority, application Netherlands, Mar. 5, 1981, 8101061

Int. Cl.³ C01B *33/20, 33/26;* B01D *37/00*

U.S. Cl. 423—326 9 Claims

1. A process for separating by filtration a fine-crystalline silicate having an average crystallite size of less than 750 nm from an aqueous reaction mixture in which said silicate is present after crystallization, which comprises adding to the mixture to be filtered an organic solvent that is miscible with water in an amount sufficient to give at least 30%v (based on said mixture) of said solvent, which organic solvent has been selected from the group consisting of monohydric alcohols, ketones, sulphoxides and cyclic ethers which, per molecule, contain at most five carbon atoms; filtering said reaction mixture; and recovering the fine-crystalline silicate from the filter.

4,383,982

AMMONIA PRODUCTION PROCESS

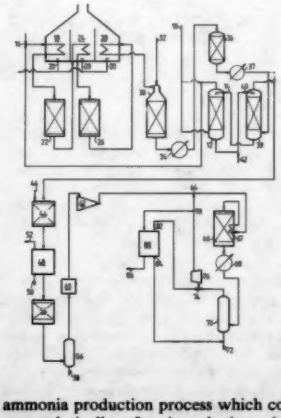
Alwyn Pinto, Middlesbrough, England, assignor to Imperial Chemical Industries PLC, London, England

Filed Sep. 30, 1981, Ser. No. 307,514

Claims priority, application United Kingdom, Oct. 14, 1980, 8033131

Int. Cl.³ C01C *1/04*

U.S. Cl. 423—359 9 Claims



1. In an ammonia production process which comprises

(a) primary catalytically reforming a hydrocarbon feedstock

with steam at superatmospheric pressure and in conditions of steam-to-carbon ratio, pressure and temperature to produce a gas containing carbon oxides, hydrogen and at least 10% v/v methane on a dry basis;

(b) secondary catalytically reforming the gas from step (a) by introducing air and bringing the mixture towards equilibrium, whereby to produce a gas containing nitrogen, carbon oxides, hydrogen and a decreased quantity of methane, the quantity of air used being in excess of what would introduce 1 molecule of nitrogen per 3 molecules of hydrogen;

(c) converting carbon monoxide catalytically with steam to carbon dioxide and hydrogen;

(d) removing carbon oxides to give a nitrogen-hydrogen ammonia synthesis gas;

(e) reacting the synthesis gas over an ammonia synthesis catalyst to produce ammonia and recovering ammonia from the reacted gas; and

(f) treating synthesis gas after reaction to synthesise ammonia to separate a stream enriched in hydrogen and returning the enriched stream to the synthesis;

and, the steps comprising

X. controlling the rate of flow of the stream enriched in hydrogen so that the hydrogen to nitrogen molar ratio of the gas entering the synthesis catalyst is in the range 1.0 to 2.5; and

Y. operating step (a) in at least one adiabatic catalyst bed and providing the endothermic heat of reaction by preheating the reactants, whereby the temperature of the reacting gas falls as it proceeds through the catalyst bed.

4,383,983

METHOD FOR THE REMOVAL OF CARBON OR CARBON COMPOUNDS FROM A WASTE STREAM

Peter Urban, Northbrook, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed Jan. 21, 1982, Ser. No. 341,921

Int. Cl.³ C01B *17/06, 31/18, 31/26;* B01J *37/12*

U.S. Cl. 423—571 **14 Claims**

1. A method for the removal of carbon or carbon compounds from a waste stream formed in an unsupported slurry catalyst process utilized for the hydroconversion of heavy hydrocarbonaceous black oil which stream comprises vanadium sulfide, nickel sulfide and carbon or carbon compounds and which method comprises contacting said waste stream at oxidizing conditions with sulfur dioxide in an amount from about 1 to about 5 times the stoichiometric amount required to oxidize said carbon or carbon compounds to produce a high BTU gas containing carbon disulfide and carbon monoxide.

4,383,984

TOLYL ISOCYANATE AND TOLUENE DIISOCYANATE TEST ANTIGENS, METHODS FOR THEIR PREPARATION AND USE IN DETECTING DIISOCYANATES AND ANTIBODIES TO DIISOCYANATES

Meryl H. Karol, and Yves C. Alarie, both of Pittsburgh, Pa., assignors to University of Pittsburgh, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 934,023, Aug. 16, 1978, Pat. No. 4,208,399. This application Jun. 16, 1980, Ser. No. 159,582

The portion of the term of this patent subsequent to Jun. 17, 1997, has been disclaimed.

Int. Cl.³ G01N *33/58, 33/60*

U.S. Cl. 424—1 **4 Claims**

1. An antigen for detection of a selected diisocyanate comprising the reaction product of a protein and the particular select diisocyanate or the monoisocyanate analogue of the select diisocyanate.

4,383,985

BREAST CANCER ANTIGENS

Alberto Bartorelli, Milan, and Roberto Accinni, Bariassina, both of Italy, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Continuation of Ser. No. 867,076, Jan. 5, 1978, abandoned. This application Jul. 11, 1980, Ser. No. 167,567

Claims priority, application United Kingdom, Jan. 12, 1977, 1140/77

Int. Cl.³ G01N *33/58, 33/60;* C07G *7/00;* A61K *43/00*

U.S. Cl. 424—1 **21 Claims**

1. Breast cancer antigens, designated "BCA", and characterized as follows:

(a) being endogenous to and extractable with a glycoprotein solvent from human primary breast carcinomas,

(b) unreactive with carcinoembryonic antigen antiserum,

(c) reactive only with antiserum produced by antigens extracted from human primary breast carcinomas, and

(d) essentially free of other endogenous material.

7. An immunoassay method for detecting breast cancer antigens, designated BCA, said BCA being as claimed in claim 1 and circulating in a serum or plasma sample, which method comprises:

(a) adding a specific amount of BCA-antiserum to the sample,

(b) incubating the resulting mixture of step (a),

(c) adding a specific amount of labeled BCA to the mixture,

(d) incubating the mixture,

(e) separating the resulting BCA-anti BCA complexes from free BCA,

and

(f) measuring the activity of the labeled BCA of either the complexes or the free BCA,

in order to detect the BCA of the sample.

4,383,986

HEMORRHOIDAL COMPOSITIONS

Darius D. Dubash, Somerville; Leonard L. Kaplan, East Brunswick, and George A. Ziets, Flemington, all of N.J., assignors to Ortho Pharmaceutical Corporation, Raritan, N.J.

Filed Aug. 17, 1981, Ser. No. 293,538

Int. Cl.³ A61K *9/26, 9/70, 31/74, 31/79*

U.S. Cl. 424—25 **21 Claims**

1. A topical formulation for treating the symptoms of hemorrhoids comprising a therapeutically effective amount of hydrocortisone in a liquid solution comprising 0.1–0.25 percent by weight of a fungicide-bactericide; 0.075–1.375 percent by weight of a polymeric film-former; 0.5–15 percent by weight of an alcohol; 0.5–25 percent by weight of dimethyl isosorbide; 0.1–0.25 percent by weight of an amphoteric surfactant; 43.0–58.45 percent by weight of hamamelis extract; and a quantity of water sufficient to make a 100% solution.

8. The topical formulation of claim 1 which comprises 0.50 percent by weight of hydrocortisone in a liquid solution comprising 0.25 percent by weight of a fungicide-bactericide selected from methyl paraben, propyl paraben, butyl paraben, benzalkonium chloride, cetyl pyridinium chloride, phenyl mercuric chloride, phenol and resorcinol; 1.0 percent by weight of a polymeric film-former selected from polyvinylpyrrolidone, polymer JR-400, polyvinyl alcohol and sodium carboxymethyl cellulose; 15.0 percent by weight of an alcohol selected from prolylene glycol, polyethylene glycol-400, isopropyl alcohol and ethyl alcohol; 15.0 percent by weight of dimethyl isosorbide; 0.25 percent by weight of an amphoteric surfactant selected from Miranol C2M-SF Conc., Miranol 2MCA modified, Miranol CM Conc., Miranol MHT, Mirataine CB, Mirataine BB and Mirataine CDMB; 50.0 percent by weight of hamamelis extract; and a quantity of water to make a 100% solution.

10. The topical formulation of claims 1 or 8 wherein the solution is absorbed on a nonwoven cloth material.

4,383,987

FOAMING DENTIFRICE CONTAINING NONIONIC SURFACE ACTIVE AGENT

Diana Kiozpeoplou, Somerville, N.J., assignor to Colgate/Palmolive Company, New York, N.Y.

Continuation-in-part of Ser. No. 277,774, Jun. 26, 1981, abandoned. This application Sep. 8, 1981, Ser. No. 299,684

Int. Cl.³ A61K *7/16*

U.S. Cl. 424—49 **8 Claims**

1. A foaming dentifrice having stable, full-bodied foam character comprising about 20–80% by weight of a liquid humectant vehicle, about 0.5–7% by weight of xanthan gum effective to provide said stable full-bodied foam and about 1–10% of a surface active agent consisting essentially of a nonionic polyoxyethylene-polyoxypropylene block copolymer.

4,383,988

GELLED ANTIPERSPIRANT

James Teng, St. Louis, and James M. Lucas, Crestwood, both of Mo., assignors to Anheuser-Busch, Incorporated, St. Louis, Mo.

Continuation of Ser. No. 900,895, Apr. 28, 1978, abandoned, which is a continuation of Ser. No. 727,004, Sep. 27, 1976, abandoned. This application Dec. 13, 1979, Ser. No. 103,183

Int. Cl.³ A61K *7/38*

U.S. Cl. 424—68 **8 Claims**

1. A clear, viscous and pourable gelled antiperspirant solution capable of forming a residual film on the skin of the user, said film holding the active ingredient to the skin, said solution consisting essentially of (a) a gel solution which is alcohol and a water insoluble gelling agent for said alcohol, said alcohol being present in amount of about 45 to about 80% by weight of the antiperspirant solution and said gelling agent comprising about 0.6% to about 2.0% by weight of the antiperspirant solution, said gelling agent being selected from the group consisting of hydroxypropyl cellulose esters, hydroxypropyl starch esters, and mixtures thereof, said esters having a degree of substitution of about 1.2 to about 3 and a degree of molar substitution of hydroxypropyl groups of about 2 to about 8, (b) an antiperspirant dissolved in said gell solution to yield the gelled antiperspirant solution, said antiperspirant being present in amount of about 40 to about 14% by weight of the antiperspirant solution, and (c) an emollient.

4,383,989

FACTOR VIII CONCENTRATES PREPARED FROM HEPARINIZED PLASMA BY THE APPLICATION OF A COLD PRECIPITATION TECHNIQUE

Gail A. Rock, 270 Sandridge Rd., Rockcliffe Park, Ontario, Canada (K1L 5A2)

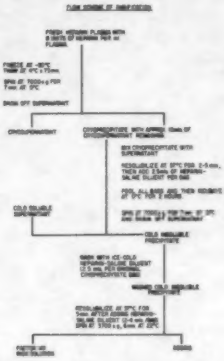
Filed Nov. 2, 1981, Ser. No. 317,312

Claims priority, application Canada, Oct. 1, 1981, 387063

Int. Cl.³ A61K *35/14*

U.S. Cl. 124—101 **3 Claims**

1. In a method of obtaining Factor VIII which comprises
(a) adding heparin to freshly obtained blood plasma collected into a calcium chelating anticoagulant or collecting blood plasma by plasma pheresis using heparin and a calcium chelating anticoagulant;
(b) freezing the plasma;
(c) resolubilizing the plasma;
(d) isolating a cryoprecipitate from the plasma;
(e) resolubilizing the cryoprecipitate;
(f) adding a citrate saline heparin buffer to the resolubilized cryoprecipitate;
(g) incubating the buffered, resolubilized cryoprecipitate at a temperature of from about 0° to 10° C. for a time in excess of about one hour, whereby Factor VIII present in the cryoprecipitate is insolubilized using heparin precipitable cold insoluble globulin and the resulting (Factor VIII) rich precipitate also includes cold insoluble globulin;
(h) separating the Factor VIII rich precipitate; and
(i) isolating Factor VIII therefrom,
the improvement consisting of:
(1) substituting for step (a) collecting freshly obtained blood plasma or blood plasma fractions directly into an anticoagulant consisting essentially of heparin, sodium heparin, or



their mixture, in a proportion of about 6–8 units of heparin per ml of blood plasma, in the absence of a calcium chelating anticoagulant; and
(2) substititing for step (f), adding a buffer consisting essentially of a saline heparin solution to the resolubilized cryoprecipitate, in the absence of a citrate buffer.

4,383,990

ANTIVIRAL AGENTS, THEIR PREPARATION AND USE

Paul L. Coe; Albert S. Jones, both of Birmingham, England; Stewart A. Noble, Boulder, Colo., and Richard T. Walker, Birmingham, England, assignors to Beecham Group Limited, England

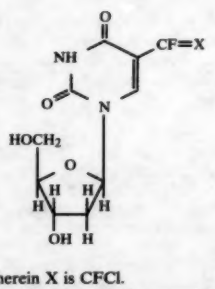
Filed Sep. 21, 1981, Ser. No. 303,827

Claims priority, application United Kingdom, Oct. 1, 1980, 8031720

Int. Cl.³ A61K *31/70*; **C07H** *19/06*

U.S. Cl. 424—180 **11 Claims**

1. A compound of formula (I):



(I)

wherein X is CFCl.

8. A pharmaceutical composition having antiviral activity against herpes viruses comprising an anti-viral effective amount of a compound of formula (I) according to claim 1 in combination with a pharmaceutically acceptable carrier or excipient.

10. A method for treating herpes viral infections of human or non-human animals which method comprises administering an effective, non-toxic amount of a compound of formula (I) according to claim 1 to a human or non-human animal having a herpes viral infection.

4,383,991
O-ALKYL-S-ALKYL-S-BRANCHED ALKYLPHOSPHORODITHIOATE SOIL INSECTICIDES

Stanley T. D. Gough, Whitehouse Station, N.J., assignor to Rhone-Poulenc Agrochimie, Lyons, France

Filed Jun. 23, 1981, Ser. No. 276,622
Int. Cl.[3] A01N 57/12; C07F 9/165
U.S. Cl. 424—224 11 Claims

1. A method for controlling corn rootworm which comprises applying to its habitat, in an amount effective for controlling corn rootworm, a compound having the formula

wherein R is ethyl, R′ is n-propyl and R″ is C_3-C_4 branched alkyl.

6. A compound having the formula

wherein R and R′, which can be the same or different, are C_1–C_3 n-alkyl and R″ is branched butyl.

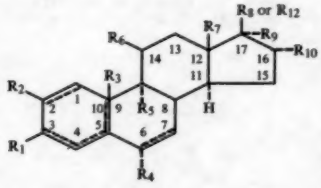
4,383,992
WATER-SOLUBLE STEROID COMPOUNDS

John M. Lipari, 1616 Kuiper La., Racine, Wis. 53406

Filed Feb. 8, 1982, Ser. No. 346,501
Int. Cl.[3] A61K 31/56
U.S. Cl. 424—238 10 Claims

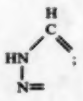
1. A water-soluble inclusion compound formed by complexing beta-cyclodextrin with a steroid compound having a molecular structure smaller than the inside dimension of the internal cavity of beta-cyclodextrin.

2. A water-soluble inclusion compound according to claim 1 wherein said steroid has the following general chemical structure:



wherein

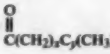
R_1 is H, =O, OH, OCH_3 OR_{11}, or bridged with R_2



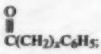
R_2 is H, $CHOR_{11}$ or bridged with R_1 as noted above;
R_3 is H or CH_3;
R_4 is H, CH_3, F, Cl, or Br;
R_5 is H, F, Cl, or Br;
R_6 is H, =O, or OR_{11}
R_7 is H, CH_3 or C_2H_5;
R_8 is OH, =O, C=CH, R_{11}, —OR_{11} or

R_9 is H, OH, CH_3, C_2H_5, C=CH, OR_{11} or bridged with R_{10} as

R_{10} is H, CH_3, or OR_{11};
R_{11} is H, or



R_{12} is



x is O or a positive integer of 1–10;
y is O or a positive integer of at least 1;
z is a positive integer of 1–3; and
the dotted lines indicate the alternate positions of the double bond.

4. An anti-inflammatory pharmaceutical preparation comprising an effective amount of one or more inclusion compounds formed by complexing beta-cyclodextrin and an anti-inflammatory steroid compound having a molecular structure smaller than the inside dimension of the internal cavity of beta-cyclodextrin and mixed with a non-toxic pharmaceutical carrier.

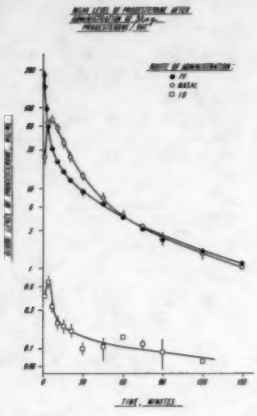
4,383,993
NASAL DOSAGE FORMS CONTAINING NATURAL FEMALE SEX HORMONES

Anwar A. Hussain; Shinichiro Hirai, and Rima Bawarshi, all of Lexington, Ky., assignors to University of Kentucky Research Foundation, Lexington, Ky.

Continuation of Ser. No. 154,995, May 30, 1980, Pat. No. 4,315,925. This application Jun. 24, 1981, Ser. No. 277,000
Int. Cl.[3] A01N 45/00
U.S. Cl. 424—239 26 Claims

1. A pharmaceutically acceptable nasal composition, in dosage unit form, for nasal administration to a female mammal for the purpose of mammalian contraception, said composition consisting essentially of, per nasal unit, a systemically effective contraceptive amount of a combination of progesterone and a

pharmaceutically acceptable, estrogenically active form of 17β-estradiol, together with a nontoxic pharmaceutically ac-



ceptable nasal carrier therefor, said composition comprising a nasal ointment or a nasal gel.

4,383,994

HOMOCYSTEINE THIOLACTONE SALTS AND USE THEREOF AS ANTI-NEOPLASTIC AGENTS

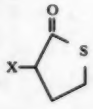
Kilmer S. McCully, 15 Wildwood St., Winchester, Mass. 01890

Filed Jan. 19, 1982, Ser. No. 340,712

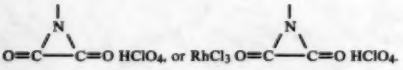
Int. Cl.[3] A61K *31/38*; **C07D** *333/30*

U.S. Cl. 424—245 **9 Claims**

1. A compound of the formula



wherein X is cis—HOCOCH=CHCONH—, cis—H_2.NCOCH=CHCONH—,



4,383,995

[4,5] 4H-BENZO [1,2-B] CYCLOHEPTA FURAN DERIVATIVES AND APPLICATION THEREOF AS ANTI-FIBRILLATING AGENTS

Bernard Delbarre, Ferme les Carnaux, Ballan Mire, 37300 Joue-les-Tours, and Louis Mavoungou-Gomes, 3, rue Desportes, 49000 Angers, both of France

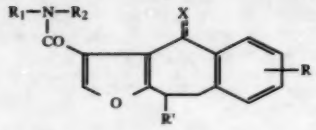
Filed Nov. 4, 1981, Ser. No. 318,179

Claims priority, application France, Nov. 10, 1980, 80 23973

Int. Cl.[3] A61K *31/34*; **C07D** *307/93*

U.S. Cl. 424—248.54 **5 Claims**

1. A compound of the following formula:



(I)

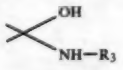
in which R represents a hydrogen atom, an alkyl radical having from 1 to 6 carbon atoms or an alkoxy radical with from 1 to 6 carbon atoms;

R′ represents a hydrogen atom, an alkyl radical having from 1 to 6 carbon atoms, a phenyl radical or a phenylalkyl radical the alkyl part of which has from 1 to 6 carbon atoms,

X is a hydroxy radical or an oxo radical, and R_1 and R_2 taken separately represent independently from one another a hydrogen atom, an alkyl radical having from 1 to 6 carbon atoms, carrying possibly a cyano radical or a radical of the following formula:

in which R_4 and R_5 represent independently of one another a hydrogen atom, an alkyl radical having from 1 to 6 carbon atoms or form together and with the nitrogen atom to which they are fixed a morpholino radical, and

R_1 and R_2 together form with the nitrogen atom to which they are fixed a morpholino, piperidino or piperazino radical carrying possibly on the second nitrogen atom an alkyl radical having from 1 to 6 carbon atoms or a phenylalkyl radical the alkyl part of which has from 1 to 6 carbon atoms, or X is a moiety of



or a radical of formula =N—R_3, R_3 representing a hydrogen atom or an alkyl radical having from 1 to 6 carbon atoms, possibly carrying a radical of the following formula:

in which R_4 and R_5 have the same meaning as that given above, R_1 is identical to R_3, and R_2 is a hydrogen atom, or X forms with R_2 a bridge =N—, and R_1 represents a hydrogen atom or an alkyl radical having from 1 to 6 carbon atoms, possibly carrying a radical of the following formula:

in which R_4 and R_5 have the same meaning as above, and their addition salts with acids.

4. A method of effecting an antifibrillating activity in a mammal in need of said therapy, comprising administering a therapeutically effective amount of a compound of claim 1 or 2 to said mammal.

4,383,996

DERIVATIVE OF THIAZOLO[3,2-a]PYRIMIDINE AND A PROCESS FOR THE PREPARATION THEREOF AND A DRUG CONTAINING IT

Takeo Oba; Kiyoshi Bannai; Toshio Tanaka; Kenzo Watanabe; Tatsuyuki Naruchi; Keiji Komoriya; Seizi Kurozumi, and Kenji Hoshina, all of Hino, Japan, assignors to Teijin Limited, Osaka, Japan

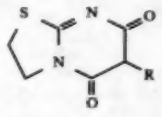
PCT No. PCT/JP80/00090, § 371 Date Dec. 28, 1981, § 102(e) Date Dec. 28, 1981, PCT Pub. No. WO81/03174, PCT Pub. Date Nov. 12, 1981

PCT Filed Apr. 28, 1980, Ser. No. 339,460

Int. Cl.³ C07D *513/04;* A61K *31/505*

U.S. Cl. 424—251 **6 Claims**

1. A thiazolo[3,2-a]pyrimidine compound expressed by the following formula (I)



(I)

where R represents a phenyl group or a benzyl group which has a halogen atom, a lower alkyl group or a lower alkyloxy group as a substituent group, an alicyclic group of 3 to 7 carbon atoms, or a phenethyl group.

4,383,997

METHOD OF TREATING HORSES TO INHIBIT OR REDUCE INCREASES IN CRENATED RED BLOOD CELLS DURING EXERCISE

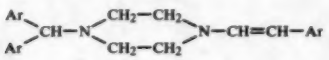
John H. Boucher, 2106 Salisbury Rd., Silver Spring, Md. 20910

Filed Nov. 26, 1980, Ser. No. 210,591

Int. Cl.³ A61K *31/52, 31/495*

U.S. Cl. 424—253 **9 Claims**

1. A method of treating a horse to prevent or reduce the increase in crenated red blood cells which occurs in the blood of said animal after exercise sufficient to induce said increase of crenated red blood cells, the blood of said animal having a normal content of crenated red blood cells prior to said exercise, which comprises administering to said animal immediately prior, during or subsequent to said exercise an effective amount of a compound selected from the group consisting of an N-cinnamyl-N′-benzhydryl piperazine having the formula:



wherein Ar and Ar′ are selected from the group consisting of phenyl, fluorophenyl and a therapeutically active acid addition salt thereof and a compound which increases intracellular adenosine triphosphate content.

4,383,998

FURO-(3,4-c)-PYRIDINE DERIVATIVES AND THEIR PHARMACEUTICAL USE

Andre Esanu, Paris, France, assignor to Societe de Conseils de Recherches et D'Applications Scientifiques, Paris, France

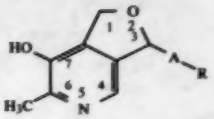
Filed Jan. 8, 1982, Ser. No. 338,140

Claims priority, application United Kingdom, Feb. 10, 1981, 8104072

Int. Cl.³ A61K *31/435;* C07D *491/048*

U.S. Cl. 424—256 **2 Claims**

1. A 1,3-dihydro-6-methyl-7-hydroxy-furo-(3,4-c)-pyridine derivative of the general formula



wherein A< represents a group of the formula $-(CH_2)_n-$, n being an integer of from 1 to 5, or a phenyl or thienyl group, and R represents a hydrogen, chlorine or fluorine atom, a trifluoromethyl group, an alkyl group having from 1 to 5 carbon atoms, an alkoxy group having from 1 to 5 carbon atoms, a thioalkyl group having from 1 to 5 carbon atoms, a dialkylaminoalkoxy group in which the alkyl groups each have from 1 to 5 carbon atoms and the alkoxy group has from 1 to 5 carbon atoms or a N-pyrolidinyl-alkoxy group in which the alkoxy group has from 1 to 5 carbon atoms.

2. A composition for effecting diuresis and the lowering of the lipid rates in blood comprising a therapeutically effective amount of at least one of the compounds of claim 1 in a therapeutically acceptable carrier therefor.

4,383,999

INHIBITION OF GABA UPTAKE BY N-SUBSTITUTED AZAHETEROCYCLIC CARBOXYLIC ACIDS AND THEIR ESTERS

William E. Bondinell, Cherry Hill, N.J.; John J. Lafferty, Levittown, and Charles L. Zirkle, Berwyn, both of Pa., assignors to Smithkline Beckman Corporation, Philadelphia, Pa.

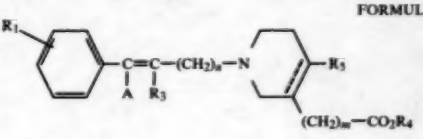
Continuation-in-part of Ser. No. 267,220, May 26, 1981, abandoned. This application Apr. 28, 1982, Ser. No. 372,504

Int. Cl.³ A61K *31/455, 31/445;* C07D *211/78, 211/60*

U.S. Cl. 424—266 **21 Claims**

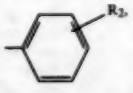
1. A compound represented by one of the formulas:

FORMULA I



wherein:

A is



2-thienyl, 3-thienyl or cyclohexyl;

R_1 and R_2, which are the same or different, are hydrogen, fluorine, chlorine, methyl or methoxy;

R_3 is hydrogen or methyl;

n is a positive whole integer 2, 3 or 4;

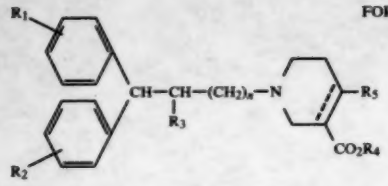
m is a positive whole integer 0 or 1;

R_4 is hydrogen or lower alkyl of from 1 to 4 carbon atoms;

the dotted line represents an optional double bond, when m is 0; and

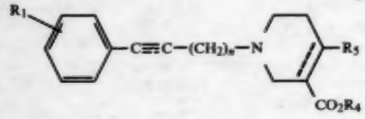
R_5 is hydrogen or hydroxy, or when there is a double bond, hydrogen;

FORMULA II



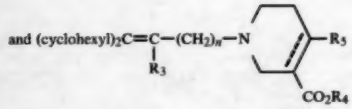
wherein: R_1, R_2, R_3, R_4 and R_5, and the dotted line, are as defined above for formula I, and n is a positive whole integer 3 or 4;

FORMULA III



wherein: R_1, R_4, R_5, n and the dotted line are as defined above for formula I;

FORMULA IV



wherein: R_3, R_4, R_5, n and the dotted line are as defined above for formula I;

or a pharmaceutically acceptable acid addition salt thereof.

21. A pharmaceutical composition for inhibiting GABA uptake in dosage unit form comprising a pharmaceutical carrier and an amount sufficient to produce said inhibition of a compound of claim **1**, **3**, **4**, **5**, **6**, **7**, **8**, **9**, **10**, **11**, **12**, **13**, **14**, **15**, **16**, **17** or **20**, or a pharmaceutically acceptable acid addition salt thereof.

4,384,000

METHOD FOR TREATMENT OF VARIOUS DERMATOLOGICAL CONDITIONS

Earl W. Lanier, 1107 Dunford Dr., St. Louis, Mo. 63137

Continuation of Ser. No. 175,938, Aug. 7, 1980, abandoned, which is a continuation of Ser. No. 56,512, Jul. 11, 1979, abandoned, which is a continuation of Ser. No. 941,976, Sep. 13, 1978, abandoned, which is a continuation of Ser. No. 848,513, Nov. 4, 1977, abandoned, which is a continuation of Ser. No. 731,828, Oct. 12, 1976, abandoned, which is a continuation of Ser. No. 601,378, Aug. 4, 1975, abandoned. This application Nov. 16, 1981, Ser. No. 321,800

Int. Cl.³ A61K *31/445*

U.S. Cl. 424—267 **10 Claims**

1. The method of treating human dermatological conditions selected from the class consisting of papulosquamous inflammatory dermatoses, inflammatory dermatoses, pruritus, ichthyosis, and hyperplastic epidermal conditions comprising the administration of an effective dosage of diphenoxylate hydrochloride to a patient suffering therefrom.

4,384,001

TREATMENT OF TUMORS WITH THIAZOLIDINE-4-CARBOXYLIC ACID

Mario G. Gosalvez, c/Caleruega 21, 7A Pinar de Chamartin, Madrid, Spain

Filed Dec. 21, 1978, Ser. No. 971,729

Int. Cl.³ A61K *31/425*

U.S. Cl. 424—270 **9 Claims**

1. A process for treating a malignant tumor to arrest or retard the growth thereof comprising administering a member selected from the group consisting of thiazolidine-4-carboxylic acid and a pharmaceutically acceptable salt thereof to a human subject having the malignant tumor according to a dosage schedule effective to arrest or retard the growth of said tumor.

4,384,002

ODORLESS, NON-VOLATILE FORMALDEHYDE FOR USE AS A PESTICIDE

Benjamin B. Stoller, c/o Stoller Research Co., P.O. Box 1339, Santa Cruz, Calif. 95061

Filed May 8, 1981, Ser. No. 261,904

Int. Cl.³ A01N *35/02, 37/00*

U.S. Cl. 424—315 **2 Claims**

1. The method of inhibiting the growth of insects, fungi or bacteria in a casing for mushrooms or in mushroom beds comprising spraying an aqueous solution of formaldehyde sodium bisulfite onto the mushroom bed wherein about 20 to 25 ounces of liquid formaldehyde sodium bisulfite are mixed with 100 gallons of water and applied to about 2200 square feet of bed.

4,384,003

CONTRACEPTIVE SUPPOSITORY

Michael S. Kazmiroski, Philadelphia, and Wilmer E. Latshaw, Berwyn, both of Pa., assignors to Menley & James Laboratories, Ltd., Philadelphia, Pa.

Filed Jun. 29, 1981, Ser. No. 278,040

Int. Cl.³ A61K *31/09*

U.S. Cl. 424—341 **4 Claims**

1. A vaginal contraceptive suppository having both a rapid release and prolonged duration of effectiveness of active ingredient, comprising from about 3% to about 10% of a thickening agent, from about 10% to about 40% of sodium starch glycolate, from about 3% to about 7% of a spermicide and a suppository base comprising oil soluble glycerides of natural fatty acids.

4,384,004

ENCAPSULATED APM AND METHOD OF PREPARATION

Theresa Cea, Brooklyn; Joseph D. Posta, Mamaroneck, and Michael Glass, Flushing, all of N.Y., assignors to Warner-Lambert Company, Morris Plains, N.J.

Filed Jun. 2, 1981, Ser. No. 269,081

Int. Cl.³ A23L *1/236*; A23G *3/30*

U.S. Cl. 426—3 **35 Claims**

1. L-aspartyl-L-phenylalanine methyl ester comprising solid particles of said methyl ester encapsulated by a coating material selected from the group consisting of cellulose, cellulose derivatives, arabinogalactin, gum arabic, polyolefins, waxes, vinyl polymers, gelatin, zein and mixtures thereof, wherein the amount of said coating material to said methyl ester is from 1:1 to 1:10.

4,384,005

NON-FRIABLE, READILY-SOLUBLE, COMPRESSED TABLETS AND PROCESS FOR PREPARING SAME

Daniel R. McSweeney, Willowbrook, Ill., assignor to General Foods Corporation, White Plains, N.Y.

Continuation-in-part of Ser. No. 191,810, Sep. 26, 1980, abandoned. This application Jun. 2, 1981, Ser. No. 269,435
Int. Cl.³ B27J 5/00; A23L 2/00, 1/275, 1/236
U.S. Cl. 426—250 20 Claims

1. An improved process for preparing a non-friable, rapidly water-soluble tablet, said tablet comprises an edible acidulent and is prepared by compressing a moistened mixture of dry components, wherein the process comprises the steps of:

(a) preparing a uniform dry mix comprising an acidulant;

(b) admixing an aqueous moistener comprising corn syrup with the dry mix wherein the amount of moistener is between 2% to 15% of the dry weight of the mix;

(c) adding a sufficient amount of a hydrolyzed starch material to function as a melting point elevator and also to convert the mixture of step (b) into a free-flowing granular composition;

(d) compressing the flowable composition of step (c) to the extent necessary to obtain a coherent tablet which has a tablet density of from 0.7 to 1.0 grams per cubic centimeter, as measured on a tablet having a moisture content of less than about 1.5% by weight; and

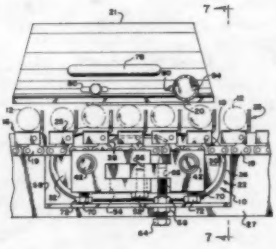
(e) drying the tablet to a stable moisture content of less than 1.5%.

4,384,006

METHOD FOR APPLYING A GRILL STRIPE TO A FOOD PRODUCT

William P. Wallick, 7478 W. 10th Ave., Lakewood, Colo. 80215

Division of Ser. No. 214,187, Dec. 8, 1980, Pat. No. 4,373,431. This application Jul. 27, 1981, Ser. No. 287,158
Int. Cl.³ A22C 17/10; A23L 3/18
U.S. Cl. 426—383 3 Claims



1. A method for placing a grill stripe around a food product of a circular transverse cross section, including the steps of:

conveying said food product translationally along a predetermined path;

raising said food product from said predetermined path and into contact with means for scoring said food product;

simultaneous to the raising and conveying of said food product, rotating said food product against said means for scoring a grill stripe on said food product, said food product raised and rotated by means for placing said food product into contact with said means for scoring said food product moving independently of the conveying of said food product, said means for placing said food product into contact with said means for scoring imparting a higher velocity of translational movement to said food product than the conveying velocity, said translational movement occurring over a predetermined distance along said means for scoring said food product.

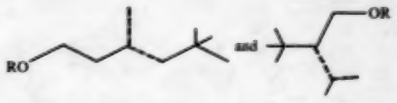
4,384,007

USE IN FLAVORS OF PRINS REACTION PRODUCTS OF DIISOBUTYLENE

Richard M. Boden, Monmouth Beach, N.J., assignor to International Flavors & Fragrances Inc., New York, N.Y.

Division of Ser. No. 280,683, Jul. 6, 1981. This application Jun. 24, 1982, Ser. No. 391,593
Int. Cl.³ A23L 1/226
U.S. Cl. 426—534 3 Claims

1. A process for augmenting or enhancing the aroma or taste of a foodstuff comprising the step of adding to said foodstuff from 0.02 parts per million up to about 50 parts per million based on the total composition of a mixture of compounds containing compounds defined according to the structures:



wherein in the mixture, in each of the compounds, one of the dashed lines is a carbon-carbon double bond and the other of the dashed lines is a carbon-carbon single bond and in both compounds, the moiety "R" is the same and "R" represents a moiety selected from the group consisting of hydrogen and acetyl.

4,384,008

BUTTER-FLAVORED OILS

Daniel H. Millisor, Fairfield, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed Mar. 5, 1981, Ser. No. 240,661
Int. Cl.³ A23D 5/02; A23L 1/221
U.S. Cl. 426—613 10 Claims

1. A butter-flavored fat or oil comprising:

(A) from about 95% to about 99.9% by weight of an edible triglyceride;

(B) from about 0.01% to about 5% by weight of a butter flavor composition comprising:

(1) a butter flavor composition encapsulated in water-soluble material in an amount of about 10–95% based on the weight of the composition;

(2) the ingredients of the butter flavor of (1) in an unencapsulated form in an amount of about 5–90% based on the weight of the composition wherein the butter-flavored oil contains flavoring amounts but no more than 8 ppm of butyric acid, 12 ppm of hexanoic acid, and 12 ppm of diacetyl.

4,384,009

METHOD OF MANUFACTURING DEHYDRATED MEAT PRODUCT

Victor M. Lewis, and David A. Lewis, both of 19 Boundary St., Rushcutters Bay NSW, Australia

Continuation-in-part of Ser. No. 79,536, Sep. 27, 1979, abandoned. This application Jun. 15, 1981, Ser. No. 273,744
Claims priority, application Australia, Oct. 3, 1978, PD6209
Int. Cl.³ A23L 1/31; A23B 4/00
U.S. Cl. 426—646 8 Claims

1. A method for producing an intermediate moisture dehydrated meat product free of chemical preservatives and having a mosture content of between about 15 and about 45 percent and a water activity level of between about 0.7 and 0.85 which comprises:

forming a cohesive mixture of about 40–90% by weight raw meat pieces and 10–60% by weight edible, pervious, water absorbent material selected from the group consisting of vegetable materials, dried meat products and semi-dried meat products, to provide a formulation of raw materials

having a consistency such that it can be formed into sheets or extruded;

adding to the formulation of raw materials during mixing an additive including salt with or without an agent selected from the group consisting of sugar, sugar derivatives and hydrolyzed plant proteins, the amount of said additive being such that after dehydration the about of salt in the product will be between 2 and 8% by weight and the amount of sugar will be less than 5% by weight;

forming from the formulation of raw materials one or more shapped uncooked pieces between about 0.5 and 10 mm thick;

dehydrating the shaped uncooked pieces by elevating their temperature to about 70° C. for a period of time adequate to reduce the water activity level to between about 0.70 and 0.85 and the moisture content to between 15 and 45%; and

packaging the dehydrated pieces in a substantially oxygen free environment and in the absence of chemical preservatives.

4,384,010

GRINDING AIDS FOR THE GRINDING OF CEREAL GRAINS

Mauricio Bermudez, Miami, Fla.; Richard R. Klimpel, and Steven D. Sands, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 113,895, Jan. 21, 1980, abandoned. This application Oct. 10, 1980, Ser. No. 195,978

Int. Cl.³ A23L *1/00*

U.S. Cl. 426—618 10 Claims

1. A method for grinding cereal grains, the method comprising grinding the cereal grain in the presence of an aqueous grinding medium and an amount of a hygroscopic polyhydric alcohol sufficient to increase the grinding efficiency said aqueous grinding medium being employed in an amount ranging from about 10 to about 100 weight percent based on the weight of the cereal grain and aqueous grinding medium.

4,384,011

PROCESS FOR PRODUCING GRAVURE PRINTING PLATES

Toshimi Aoyama; Bonpei Kato, both of Yokohama; Hiroyuki Tohda, Fujisawa; Eiichi Tachibana, Toda, and Shinichi Hikosaka, Tokyo, all of Japan, assignors to Dai Nippon Insatsu Kabushiki Kaisha and Tokyo Ohka Kogyo Kabushiki Kaisha, both of, Japan

Filed Sep. 14, 1981, Ser. No. 302,237

Claims priority, application Japan, Sep. 19, 1980, 55-130198

Int. Cl.³ B05D *3/06*

U.S. Cl. 427—54.1 9 Claims

1. A process for producing resinous gravure printing plates which comprises coating a printing substrate with a film of a radiation-curable coating composition comprising 100 parts by weight of a soluble polyamide resin, 50 to 100 parts by weight of a radiation-polymerizable monomeric compound, and a solvent in a quantity sufficient to cause the viscosity of the coating composition to be suitable for coating, curing the coated film by irradiation with actinic rays, and engraving the resulting cured coated film, said radiation-polymerizable monomeric compound being a nitrogen-containing compound having at least three ethylenic unsaturations.

4,384,012

METHOD OF MANUFACTURING A MAGNETIC RECORDING ELEMENT

Hendrikus F. Huisman, and Johannes G. C. M. deBres, both of Oosterhout, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 14, 1981, Ser. No. 330,623

Claims priority, application Netherlands, Jan. 6, 1981, 8100014

Int. Cl.³ B05D *5/12*

U.S. Cl. 427—130 3 Claims

1. A method of manufacturing a magnetic recording element, comprising a carrier and a magnetic coating provided thereon said magnetic coating comprising magnetizable particles in a binder dissolved in a solvent, characterized in that non-magnetic FeOOH particles are treated with an aqueous solution of a water-soluble salt the cations of which form a water-insoluble salt with sulphate ions present on the surface of the particles, the treated FeOOH particles are converted according to a known method into magnetic Fe or γ-Fe_2O_3 particles, which particles are then incorporated in a solution of the binder with the possible addition of auxiliary substances, the resulting magnetic coating is provided on a carrier and the solvent for the binder is evaporated.

4,384,013

VOLATILE AMINE-CURED TRIALKOXYSILYL-CONTAINING AQUEOUS LATEX COATINGS

Gerry K. Noren, Hoffman Estates, Ill., assignor to DeSoto, Inc., Des Plaines, Ill.

Continuation-in-part of Ser. No. 101,441, Dec. 10, 1979, abandoned. This application Jun. 4, 1981, Ser. No. 270,564

Int. Cl.³ C23C *11/00;* B05D *3/04*

U.S. Cl. 427—255.4 6 Claims

1. A method of forming a dry, cured coating at low temperature comprising applying an aqueous latex of emulsion copolymer particles to a substrate to form a wet coating on said substrate, the copolymer of said particles comprising at least about 80 percent by weight of copolymerized monoethylenically unsaturated monomers containing a single ethylenic group and no other reactive functional group, and having a plurality of pendant —$Si(OR)_3$ groups wherein R is an alkyl group having 1–4 carbon atoms, catalytically curing said wet coating on said substrate by exposing said wet coating to vapors of a volatile amine for a time period of about 10 seconds to about 30 minutes, and allowing said amine-exposed wet coating to stand to allow removal of volatile components by vaporization, and the cure to be completed.

4,384,014

IMPREGNATION OF POROUS ARTICLES

Peter D. Young, Les Blicqs, St. Andrews, Guernsey, Channel Islands, Channel Islands

PCT No. PCT/GB81/00046, § 371 Date Oct. 1, 1981, § 102(e) Date Oct. 1, 1981, PCT Pub. No. WO81/02699, PCT Pub. Date Oct. 1, 1981

PCT Filed Mar. 13, 1981, Ser. No. 308,550

Claims priority, application United Kingdom, Mar. 14, 1980, 8008718

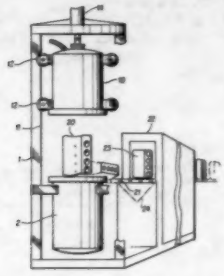
Int. Cl.³ C23C *13/08;* B05D *3/00*

U.S. Cl. 427—294 11 Claims

1. A method of impregnating a porous article in a pressure vessel connected to a impregnant-containing reservoir, comprising the steps of:

applying a reduced pressure to both the pressure vessel and the reservoir; and

allowing the pressure in the reservoir to rise by admission of air to the reservoir, to force a portion of the impregnant



into the pressure vessel whereby said porous article is impregnated by said portion of said impregnant.

4,384,015

PROCESS AND AN APPARATUS FOR SIMULTANEOUSLY COATING SEVERAL LAYERS TO MOVING OBJECTS, PARTICULARLY WEBS

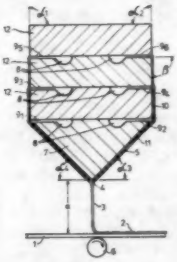
Günther Koepke, Odenthal; Hans Frenken, Odenthal-Osenau; Heinrich Bussmann, Cologne, and Kurt Browatzki, Leverkusen, all of Fed. Rep. of Germany, assignors to Agfa-Gevaert AG, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 135,697, Mar. 31, 1980, abandoned. This application Sep. 4, 1981, Ser. No. 299,534

Claims priority, application Fed. Rep. of Germany, Apr. 3, 1979, 2913217

Int. Cl.³ B05D *1/30, 1/34*

U.S. Cl. 427—402 **5 Claims**



1. A process for simultaneously applying several layers of liquid coating materials in a coating width in a coating device in the absence of a discharge lip to layer-supporting materials moving continuously past a point of application, characterized in that in a sole coating device more than two films of liquid coating materials are uniformly distributed over V-formed, vertical, curved or roof-like slide surfaces arranged and joined on V-shaped surfaces over the coating width, the films of liquids flowing on both sides to the V-shaped surfaces in the form of a single layer or more layers, one upon another and along the negatively inclined surfaces of the V-shaped coater, terminating at a junction constituting discharge edge and the films of liquids from both sides of the V-shaped body being combined at a discharge edge to form a multiple layer film of liquids which deposits directly from the discharge edge without contact with a lip and in the form of a free-falling curtain onto the moving layer supporting material in a stable coating having several substantial separate layers whereby the period of flow of the films over the slide surfaces and the freely fall enable the surface tension in the film of liquids to be reduced and the free falling curtain of films to be stabilized.

4,384,016

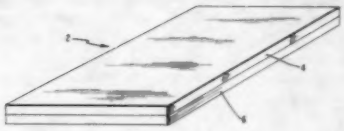
MUTIAXIALLY ORIENTED HIGH PERFORMANCE LAMINATES COMPRISED OF UNIAXIALLY ORIENTED SHEETS OF THERMOTROPIC LIQUID CRYSTAL POLYMERS

Yoshiaki Ide, North Plainfield, and Alan Buckley, Berkeley Heights, both of N.J., assignors to Celanese Corporation, New York, N.Y.

Filed Aug. 6, 1981, Ser. No. 290,554

Int. Cl.³ B29D *7/24;* **C08G** *63/60;* **C08J** *5/18*

U.S. Cl. 428—1 **38 Claims**



1. A method of providing a laminate which exhibits multiaxial orientation, possesses desirable mechanical properties and excellent thermal and chemical resistance comprising:

(a) providing at least two sheets comprised of a substantially unidirectionally oriented polymer which is capable of forming an anisotropic melt phase; and

(b) subjecting said at least two sheets to thermal bonding conditions, the longitudinal axis of said sheets being oriented at an angle to each other so as to provide a laminate possessing multiaxial orientation comprised of said at least two sheets while retaining substantial uniaxial orientation within said sheets.

4,384,017

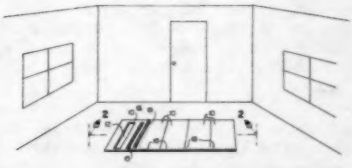
WALLPAPER PREPARATION BOARD

William G. Stafford, 2584 Dublin Dr., Salt Lake City, Utah 84119

Continuation-in-part of Ser. No. 214,125, Dec. 8, 1980, Pat. No. 4,340,161, which is a continuation of Ser. No. 49,738, Jun. 18, 1979, abandoned. This application Jul. 14, 1981, Ser. No. 283,166

Int. Cl.³ A47B *5/00;* **B25H** *1/02*

U.S. Cl. 428—12 **5 Claims**



1. A wallpaper preparation board comprising

a plurality of substantially flat, rigid panels of sheet material, said panels being hingedly attached end-to-end to form an elongate preparation board which can be folded in accordion style into a compact unit;

a first, elongate opening near one end of the board with the longitudinal direction of the first opening being generally transverse of the length of the preparation board, said first opening being adapted to receive a roll of wallcovering material longitudinally therein so that said roll is at least cradled within said first opening;

a second elongate opening or slit in said board near said first opening, said second opening being generally parallel with and adjacent to said first opening,

whereby the material on said roll can be threaded under the board from said first opening and upwardly through said second opening and then pulled along the length of said preparation board.

4,384,018

SECONDARY CARPET BACKING FABRIC

Donald Caswell, and David J. Stout, both of Waynesboro, Va., assignors to Wayn-Tex Inc., Waynesboro, Va.

Filed Jan. 25, 1982, Ser. No. 342,220
Int. Cl.³ B32B *3/02*
U.S. Cl. 428—95 **8 Claims**

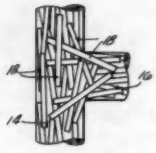
1. A woven secondary backing material comprising warp members and fill members, one of said warp and fill members comprising unfibrillated or substantially unfibrillated synthetic ribbons, the other of said warp and fill members comprising heavily fibrillated synthetic ribbon entangled with continuous, multi-filament synthetic yarn, said backing characterized by a delamination strength greater than 15 pounds.

4,384,019

MOLDED WOOD PARTICLE PRODUCTS INCLUDING INTEGRALLY JOINED INTERSECTING MEMBERS

Bruce A. Haataja, Lake Linden, Mich., assignor to Board of Control of Michigan Technological University, Houghton, Mich.

Filed Aug. 27, 1981, Ser. No. 296,781
Int. Cl.³ A47C *5/14*; B32B *5/12*
U.S. Cl. 428—106 **4 Claims**



1. A molded unitary product comprised of wood flakes intermixed with a binder, the product comprising

a first discrete elongated member having a first longitudinal axis, said first elongated member including elongated wood flakes compressed and bonded together with a binder, said wood flakes having a grain direction extending generally parallel to the longitudinal axis thereof and said wood flakes being oriented generally in alignment with the first longitudinal axis of said first elongated member, and

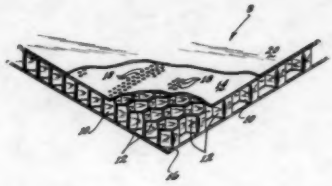
a second discrete elongated member having a second longitudinal axis, the longitudinal axis of said first elongated member being transverse to said second longitudinal axis, and a portion of said second elongated member intersecting a portion of said first elongated member, and said portion of said second elongated member being integrally joined to said portion of said first elongated member, said second elongated member including elongated wood flakes compressed and bonded together with a binder, said wood flakes having a grain direction extending generally parallel to said second longitudinal axis thereof and being oriented generally in alignment with said second longitudinal axis, and said wood flakes forming said portion of said second elongated member intersecting and being interleaved with said wood flakes of said portion of said first elongated member to form an integral molded joint between said first elongated member and said second elongated member.

4,384,020

HONEYCOMB NOISE ATTENUATING STRUCTURES

Stanley L. Beggs, Chula Vista; Frank J. Riel, San Diego, and D. W. R. Lawson, Bonita, all of Calif., assignors to Rohr Industries, Inc., Chula Vista, Calif.

Division of Ser. No. 219,219, Dec. 22, 1980. This application Jan. 11, 1982, Ser. No. 338,361
Int. Cl.³ B32B *3/12*
U.S. Cl. 428—138 **8 Claims**



1. Material for use within an aircraft jet engine inlet and nacelle structures wherein said material is exposed to the sound of jet engines and other noise producing mechanisms in acoustical attenuation applications, said material having a predetermined flow through resistance comprising:

(a) a perforated facing sheet;

(b) a thin sheet of porous material; and

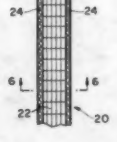
(c) a bonding medium bonding said porous material to a face of said perforated sheet selected from the class of adhesive systems whose melt viscosity, during the curing process, is sufficiently high so that the adhesive will not flow into the pores of the porous material by capillary attraction so as to maintain the full porosity of the porous material over the perforations of the perforated sheet, thereby isolating said porous material from the adjacent surface of the perforated sheet, the pores of the porous material providing communication between the outer surface of the porous material and the inner face of the perforated sheet.

4,384,021

FABRIC TAPES AND WOVEN FABRICS FOR THE PRODUCTION THEREOF

Ryuji Aoyama, Nagoya, Japan, assignor to Kabushiki Kaisha Aoyama, Nagoya, Japan

Filed Jun. 22, 1981, Ser. No. 275,830
Claims priority, application Japan, Jul. 18, 1980, 55-102322[U]; Nov. 6, 1980, 55-158873[U]
Int. Cl.³ B32B *23/02*
U.S. Cl. 428—193 **20 Claims**



1. A fabric tape comprising a main portion and selvage portions provided along both sides of said main portion, said main portion and said selvage portions being formed with different weaves therein such that each selvage portion is more resistant against fraying than the main portion, and each selvage portion has a continuous fused edge.

4,384,022

FILAMENTARY STRUCTURE

Anthony J. Fowler, Covertry England, assignor to Minnesota Mining and Manufacturing Co., Saint Paul, Minn.

Filed May 4, 1981, Ser. No. 259,960
Claims priority, application United Kingdom, May 9, 1980, 8015498
Int. Cl.³ D02G 3/00
U.S. Cl. 428—296 12 Claims

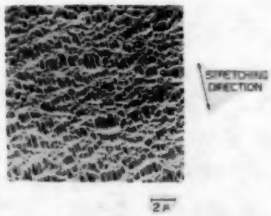
1. A filamentary structure produced directly by extrusion comprising a thermoplastic core filament extending in successive turns of a spiral about an axis, and thermoplastic sheath filaments, at least three in number, which extend linearly generally in the direction of said axis along the outside of the spiral and together form a cage thereabout, each of said sheath filaments being thermoplastically fused at spaced locations to the outside of each successive turn of said spiral core filament.

4,384,023

POROUS POLYETHYLENE FILM

Kiyonobu Okamura; Shindo Mizuo, and Osamu Fukunaga, all of Otake, Japan, assignors to Mitsubishi Rayon Company, Limited, Tokyo, Japan

Filed Dec. 31, 1981, Ser. No. 336,216
Claims priority, application Japan, Jan. 16, 1981, 56-4844
Int. Cl.³ B32B 3/26; D01D 5/12; D01F 11/00
U.S. Cl. 428—338 5 Claims



2A

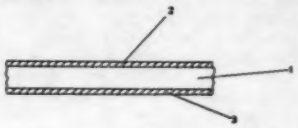
1. A porous polyethylene film comprising a series of microfibrils arrayed along the length of the film, a series of nodules disposed at substantially right angles to said microfibrils across the width of the film, said microfibrils and nodules defining micropores having an average port diameter of 0.05 to 2 microns as measured by a mercury porosimeter, said microfibrils and nodules forming laminated strips wherein the micropores in said strips are contiguous with one another to provide pores extending from the surface of the film to the other, said film having a porosity of 30 to 90% and an elastic recovery factor from the 50% stretching ratio is less than 50%.

4,384,024

COMPOSITE HEAT-SEALABLE FILMS

Douglas L. Mitchell, Letchworth, and Robert C. Lansbury, St. Albans, both of England, assignors to Imperial Chemical Industries Limited, London, England

Filed May 19, 1981, Ser. No. 265,220
Claims priority, application United Kingdom, Mar. 19, 1981, 8108702
Int. Cl.³ B32B 27/08; B29C 19/00
U.S. Cl. 428—349 8 Claims



1. A multiple-layer film comprising a polyolefin substrate layer having on at least one surface thereof a propylene-ethylene copolymer heat-sealable layer wherein the substrate layer comprises a polymer or copolymer of an alpha-olefin, the molecule of which contains from 2 to 6 carbon atoms, and wherein the heat-sealable surface layer on said at least one surface comprises a random copolymer of propylene with ethylene, the ethylene content of the copolymer being within a range of from greater than 4 up to 10% by weight of the copolymer and the heat-sealable propylene-ethylene copolymer having a degree of randomness of greater than 2.5.

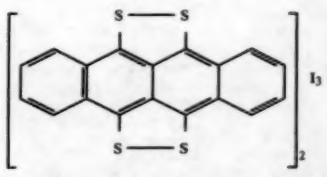
4,384,025

METALLICALLY CONDUCTING 5,6,11,12-TETRATHIOTETRACENE-IODINE CHARGE-TRANSFER COMPLEX AND PROCESSES FOR THE PRODUCTION THEREOF

Bruno Hilti, Basel, and Carl W. Mayer, Riehen, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Sep. 8, 1976, Ser. No. 721,268
Claims priority, application Switzerland, Sep. 19, 1975, 12230/75
Int. Cl.³ C07D 495/06; B32B 9/04; H01B 1/00
U.S. Cl. 428—411 12 Claims

1. Metallically conducting 5,6,11,12-tetrathiotetracene-iodine complex of the formula



4,384,026

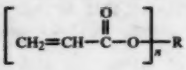
PHOTOCURABLE ACRYLIC COATED POLYCARBONATE ARTICLES

James E. Moore, Clifton Park; Ona V. Orkin, and Siegfried H. Schroeter, both of Schenectady, all of N.Y., assignors to General Electric Company, Pittsfield, Mass.

Continuation of Ser. No. 956,882, Nov. 1, 1978, abandoned. This application Apr. 15, 1982, Ser. No. 368,579
Int. Cl.³ B05D 3/06
U.S. Cl. 428—412 7 Claims

1. A coated polycarbonate article comprised of a polycarbonate substrate having disposed on at least one surface thereof an ultraviolet radiation curable coating composition consisting essentially of the following essential components: (i) at least

one acrylic modified polymer; (ii) at least one polyfunctional acrylic acid ester monomer represented by the general formula



wherein n is an integer having a value of from 2 to 4 inclusive, and R is selected from n valent aliphatic hydrocarbon residues, n valent substituted aliphatic hydrocarbon residues, n valent aliphatic hydrocarbon residues containing at least one ether linkage, and n valent substituted aliphatic hydrocarbon residues containing at least one ether linkage; and (iii) a photoinitiator.

4,384,027

COMPOSITES OF STEEL CORDS AND RUBBER

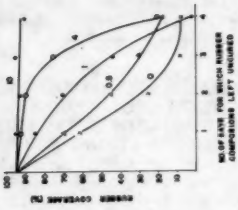
Shinji Kawakami, Hiratsuka, and Yasuhiro Ishikawa, Yokohama, both of Japan, assignors to The Yokohama Rubber Co., Ltd., Tokyo, Japan

Filed Apr. 20, 1982, Ser. No. 370,211

Claims priority, application Japan, Apr. 30, 1981, 56/64113

Int. Cl.³ C23F *7/12*; B60C *9/16*

U.S. Cl. 428—624 **5 Claims**



1. In a composite comprising a rubber layer covering steel cords and a rubber layer contiguous to said steel cords-covering layer,

the composite characterized in that:

said contiguous rubber layer contains a thiazole type vulcanization accelerator in an amount of 0.05–2.0 parts by weight per 100 parts by weight of the rubber material and

at least one member selected from said steel cords-covering rubber layer and said contiguous rubber layer contains a m-cresol resin in an amount of 0.5–10 parts by weight per 100 parts by weight of the rubber material.

4,384,028

LIQUID CATHODE ELECTROCHEMICAL CELL ADDITIVES

Joseph Surprenant, 870 Dartshire Way, Sunnyvale, Calif. 94087

Filed Aug. 6, 1981, Ser. No. 290,658

Int. Cl.³ H01M *6/14*

U.S. Cl. 429—105 **5 Claims**

1. An electrochemical cell comprising:

an anode;

a liquid cathode including an ionically conducting solute;

a solid, nonconsummable current collector consisting essentially of carbon and at least one metal selected from the group consisting of antimony, cobalt, cadmium, gold, indium, manganese, molybdenum, nickel, niobium, palladium, platinum, silver, tantalum, titanium, tin, tungsten, vanadium, yttrium, and zinc;

and a separator mechanically separating said anode from said current collector.

4,384,029

RECHARGEABLE GALVANIC ELEMENT

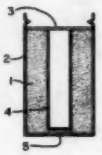
Karl Kordesch, and Josef Gsellmann, both of Graz, Austria, assignors to Varta Batterie Aktiengesellschaft, Hanover, Fed. Rep. of Germany

Filed Jul. 10, 1981, Ser. No. 282,141

Claims priority, application Fed. Rep. of Germany, Jul. 10, 1980, 3026065

Int. Cl.³ H01M *4/50*

U.S. Cl. 429—169 **7 Claims**



1. A rechargeable galvanic element having a positive manganese dioxide electrode and an aqueous alkaline electrolyte, said electrode having a tendency to swell during discharge, said element comprising

means for mounting the manganese dioxide electrode within the element in such manner that its volume does not increase during discharge.

4,384,030

SEALANT FOR BATTERY CELLS

Kenneth C. LeDuc, and Joseph P. Bellino, both of Gainesville, Fla., assignors to General Electric Company, Gainesville, Fla.

Continuation of Ser. No. 929,366, Jul. 13, 1978, abandoned. This application Aug. 27, 1980, Ser. No. 181,721

Int. Cl.³ C08L *95/00*; H01M *2/08*

U.S. Cl. 429—174 **6 Claims**

1. A sealant composition for use in battery cells to prevent electrolyte leakage and to reduce sealant flammability which consists essentially of a mixture of hard asphalt and trichloroethane in an approximate ratio of about 1:5 by volume.

4,384,031

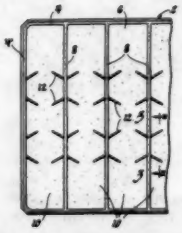
PREFORMED FLEX-RIB BATTERY CASE

Richard H. Kline, Anderson, Ind., assignor to General Motors Corporation, Detroit, Mich.

Division of Ser. No. 153,334, May 27, 1980, Pat. No. 4,309,818. This application Oct. 13, 1981, Ser. No. 310,470

Int. Cl.³ H01M *2/02*

U.S. Cl. 429—176 **2 Claims**



1. A battery container having opposing walls defining at least one cell compartment for containing the battery's electrochemical innards, flexible ribs integral with and projecting at acute angles from said walls into said compartment to resiliently engage and tightly retain said innards in said compartment, each of said ribs having a lead-in portion, an innard-

retaining portion and a transition section intermediate said portions, said lead-in portion projecting from said wall at a first said acute angle and adapted to initially engage said innards upon insertion thereof into said container, said retaining portion projecting from said wall at a second said acute angle which is greater than said first acute angle and adapted for elastic deflection toward its associated wall to accommodate innards inserted into said container, and said section projecting from said wall at various said angles intermediate said first and second said angles and defining a ramp for facilitating said deflecton of said retaining portion by said innards during said insertion without deleteriously affecting said innards.

4,384,032

FLUID TRANSMITTING POLYOLEFIN FOAMS AND METHOD OF MAKING THE SAME

Hisao Tashiro, Kawasaki; Hirokuni Naito, Hino; Masayuki Takayama, Yokohama, and Isao Yoshimura, Fujisawa, all of Japan, assignors to Asahi-Dow Limited, Tokyo, Japan

Continuation of Ser. No. 743,131, Nov. 19, 1976, abandoned, which is a continuation of Ser. No. 596,313, Jul. 16, 1975, abandoned, which is a continuation of Ser. No. 311,908, Dec. 4, 1972, abandoned, which is a continuation of Ser. No. 96,490, Dec. 9, 1970, abandoned. This application Jan. 22, 1979, Ser. No. 5,324

Claims priority, application Japan, Dec. 11, 1969, 44-099055

Int. Cl.³ B32B *27/32;* **C08J** *9/00*

U.S. Cl. 429—249 **11 Claims**

1. A fluid transmitting polyolefin foam having a density of less than 0.5 g/cm^2 formed of a polyolefin selected from the group consisting of ethylene and propylene polymers and from 1% to 99% by weight of a styrene or methacrylic acid ester polymer, said foam having cells formed therein and all or partly having their walls with an opening of less than 0.1 mm. which cooperates with one another to form passages from the openings in one surface of the foam to the other surface thereby imparting a fluid transmitting property to the overall foam.

4,384,033

PROCESS OF SYNTHESIZING AND RECORDING IMAGES

Katsuo Sakai, Yokohama, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Dec. 17, 1980, Ser. No. 217,555

Claims priority, application Japan, Dec. 18, 1979, 54/164282

Int. Cl.³ G03G *13/01*

U.S. Cl. 430—42 **16 Claims**

1. A process of synthesizing and recording images comprising the steps of:

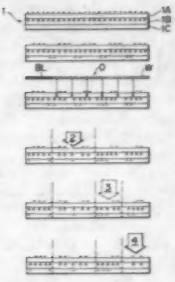
providing a photosensitive member including an electrically conductive substrate having at least first and second photoconductive layers disposed thereon wherein one of said photoconductive layers is principally rendered conductive when it is irradiated with light of a color A and the other of said photoconductive layers is principally rendered conductive when it is irradiated with light of a color B;

charging said first and second photoconductive layers to opposite polarities from each other by a primary charging by a corona charging, followed by a secondary charging of the opposite polarity from the primary charging in darkness by a corona charging, said secondary charging being to a degree less than the primary charging;

exposing the photosensitive member to a first image of a original which is formed by light of the color A to reduce the potential on the surface of the photosensitive member in exposed areas;

simultaneously with or subsequent to said exposure, scanning the exposed areas of the photosensitive member with a light spot of color B having a reference intensity serving to dissipate the surface potential on said photoconductor;

modulating the intensity of said spot by a pair of signals



corresponding to an image to be combined with said first image, the first of said signals serving to lower the intensity of said spot below its reference intensity, and the second of said signals serving to raise the intensity of said spot above its reference intensity, whereby electrostatic latent images corresponding to the pair of write signals can be formed on the exposed areas of the photosensitive member by respective distribution of surface potentials of the opposite polarities.

and developing the electrostatic latent image formed from the combined effects of said exposure step and said scanning step into visual images by utilizing two toners which are charged to opposite polarities.

4,384,034

THIOPYRYLIUM DYE SENSITIZED PHOTOCONDUCTIVE MATERIALS

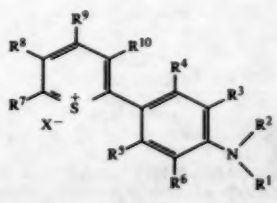
Alan N. Ferguson, White Bear Lake, Minn., and Kenneth Reynolds, Harlow, England, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Feb. 27, 1981, Ser. No. 239,013

Int. Cl.³ G03G *5/09*

U.S. Cl. 430—83 **8 Claims**

1. A sensitized photoconductive layer comprising a binder, at least 15% by weight of an electron donating compound and a sensitizing amount of a thiopyrylium compound of the general formula:



in which:

R^1 and R^2 are independently selected from the group consisting of a hydrogen atom, an alkyl or substituted alkyl

group, an aryl or substituted aryl group, an aralkyl or substituted aralkyl group, a cycloaliphatic or substituted cycloaliphatic group, and a heterocyclic or substituted heterocyclic group of C, S, N and O atoms in 5, 6 or 7-membered rings providing R^1 and R^2 do not both represent cyclic groups of aromatic nature, and R^1 and R^2 together may represent the necessary atoms to complete a non-aromatic heterocyclic ring,

R^3, R^4, R^5 and R^6 are independently selected from the group consisting of a hydrogen atom and any substituent providing the sum of their σ_p constants has a value of less than +0.5, and R^3 and R^4 and/or R^5 and R^6 may represent the necessary atoms to complete an alicyclic or aromatic ring, and R^3 and R^2 and/or R^1 and R^6 represent the necessary atoms to complete a non-aromatic heterocyclic ring,

R^7 and R^9 are independently selected from the group consisting of a hydrogen atom and any carbon linked substituent containing up to 16 carbon atoms,

R^8 and R^{10} are independently selected from the group consisting of a hydrogen atom, an alkyl group having 1 to 4 carbon atoms, and any two adjacent substituents R^7, R^8, R^9 and R^{10} together may complete an alicyclic or aromatic ring, and

X^- represents an anion.

4,384,035

PERFORATE DEVELOPMENT ELECTRODE

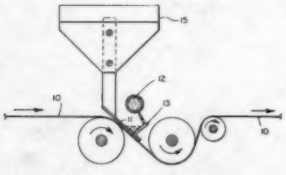
Clyde P. Grant, Gorham; Merton A. Look, Westbrook, and Richard M. Lowe, South Portland, all of Me., assignors to Scott Paper Company, Philadelphia, Pa.

Division of Ser. No. 66,395, Aug. 14, 1979, Pat. No. 4,342,823, which is a continuation of Ser. No. 570,865, Apr. 23, 1975, abandoned, which is a division of Ser. No. 338,905, Mar. 7, 1973, Pat. No. 3,916,827. This application Jun. 22, 1981, Ser. No. 275,615

The portion of the term of this patent subsequent to Aug. 3, 1999, has been disclaimed.

Int. Cl.³ B05D *1/06*

U.S. Cl. 430—103 **1 Claim**



1. A method for developing electrostatic images on a sheet of electrophotographic copy material comprising the steps of moving the copy material sheet past and separated from a perforate development electrode of the type used to eliminate edge effect in a path of uniform distance from the electrode and simultaneously delivering liquid toner at a reduced and uniform pressure uniformly through the perforate development electrode and onto the image side of the sheet without contacting the side opposite the image side with the toner.

4,384,036

PROCESS FOR PRODUCING LIQUID DEVELOPER FOR ELECTROSTATIC PHOTOGRAPHY USING SELECTED SOLVENTS

Jun Sasaki, Asaka, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Sep. 8, 1981, Ser. No. 300,098

Claims priority, application Japan, Sep. 8, 1980, 55-1243356

Int. Cl.³ G03G *9/12*

U.S. Cl. 430—113 **12 Claims**

1. A process for producing a liquid developer for electrostatic photography, which comprises adding a dye in a dispersion of fine polymer particles in a non-polar solvent, said dye being insoluble in said non-polar solvent and soluble in a monomer which is at least one component of the polymer, and then coloring the polymer particles by removing from the dispersion a second solvent which dissolves the dye, is miscible with the non-polar solvent and is capable of swelling at least part of the polymer, in the presence of said second solvent in the dye-containing polymer dispersion.

12. A liquid developer for electrostatic photography produced by a process comprising adding a dye in a dispersion of fine polymer particles in a non-polar solvent, said dye being insoluble in said non-polar solvent and soluble in a monomer which is at least one component of the polymer, and then coloring the polymer particles by removing from the dispersion a second solvent which dissolves the dye, is miscible with the non-polar solvent and is capable of swelling at least part of the polymer, in the presence for said second solvent in the dye-containing polymer dispersion.

4,384,037

POSITIVE TYPE PHOTOSENSITIVE RESIN COMPOSITION

Yoshihiro Hosaka; Yoichi Kamoshida, both of Yokohama; Yoshiyuki Harita, Kawasaki, and Kunihiro Harada, Machida, all of Japan, assignors to Japan Synthetic Rubber Co., Ltd., Tokyo, Japan

Filed Mar. 2, 1981, Ser. No. 239,339

Claims priority, application Japan, Mar. 1, 1980, 55-25629

Int. Cl.³ G03C *1/54*

U.S. Cl. 430—191 **14 Claims**

1. A positive photosensitive resin composition consisting of an admixture of 5–100 parts by weight of a 1,2-quinonediazide compound per 100 parts of a copolymer consisting essentially of (A) 5–60 mole % of a conjugated diolefinic compound, (B) 25–90 mole % of a monoolefinically unsaturated compound and (C) 5–40 mole % of an α,β-ethylenically unsaturated carboxylic acid and an additive selected from the group consisting of a storage stabilizer, a dyestuff, a pigment, a polymer soluble in an aqueous alkali solution and a mixture thereof.

4,384,038

METHOD OF PRODUCING INTEGRATED OPTICAL WAVEGUIDE CIRCUITS AND CIRCUITS OBTAINED BY THIS METHOD

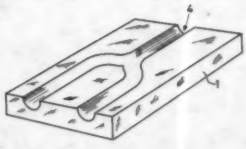
Giok D. Khoe; Hendrikus G. Kock, both of Eindhoven, Netherlands; Dieter Küppers, and Hans-Jürgen Lydtin, both of Aachen, Fed. Rep. of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 9, 1981, Ser. No. 319,774

Claims priority, application Netherlands, Nov. 25, 1980, 8006410

Int. Cl.³ G02B *5/174*; B05D *3/12*

U.S. Cl. 430—321 **9 Claims**



1. A method of producing an integrated optical waveguide circuit comprising the steps of:

providing a glass substrate having a refractive index and having a surface;

forming grooves in the substrate surface; and

depositing glass, having a higher refractive index than the refractive index of the substrate, in the grooves;

CHARACTERIZED IN THAT the grooves formed in the substrate have a substantially semicircular cross-section and are formed in a predetermined pattern by the steps of:
providing a layer of metal on the substrate surface;
providing a photomask on the metal layer, said photomask having apertures corresponding to the predetermined pattern of grooves;
etching the metal layer, through the apertures in the photomask, down to the substrate to form apertures in the metal layer; and
etching the substrate through the apertures in the metal layer.

4,384,039

METHOD FOR RECORDING LOCAL BOUNDARY-LAYER FLOW-LINE DIRECTIONS IN LIQUID MEDIA

Heinrich Opitz, Erlangen; Bernhard Montag, Forchheim, and Gerd Urban, Erlangen, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Mar. 8, 1982, Ser. No. 355,607
Claims priority, application Fed. Rep. of Germany, Mar. 17, 1981, 3110325
Int. Cl.³ G03C *5/26, 5/24;* G01D *9/00*
U.S. Cl. 430—422 **15 Claims**

1. A method for recording local boundary layer flow-line directions in aqueous liquid media by means of an applied photographic layer, comprising:
(a) providing on the surface of a structure to be exposed to flowing aqueous liquid media a dry or swelled silver halide-containing photographic film sheet having thereon, in a predetermined, non-continuous pattern, small deposits of a water-soluble substance reactive to silver ions;
(b) covering at least said deposits with a delay layer of material soluble in the flowing medium but unreactive toward components of the film sheet or the deposit thereon;
(c) exposing the so treated surface to a flowing aqueous liquid medium; and
(d) thereafter developing said film sheet to provide a visible image thereon.

4,384,040

WATERPROOF PHOTOGRAPHIC PAPER

Walter von Meer, Bad Iburg, Fed. Rep. of Germany, assignor to Felix Schoeller, Jr., Fed. Rep. of Germany

Filed Jun. 12, 1981, Ser. No. 273,111
Claims priority, application Fed. Rep. of Germany, Jun. 14, 1980, 3022451
Int. Cl.³ G03C *1/76;* B05D *3/06*
U.S. Cl. 430—532 **12 Claims**

1. A paper support for a photographic emulsion of light sensitive silver salts used in making black and white or color photographic prints, said paper support characterized by a high degree of waterproofness, planeness, image definition, and sufficient residual moisture to prevent pronounced electrostatic charge and comprising paper coated on all sides with a waterproof synthetic resin, the coating on at least one side being the electron-radiation-hardened prepolymer product of organic unsaturated polyester and reactive olefinic resins free of solvents and chemical catalysts and containing more than about 20% by weight of a white light-reflecting pigment having a particle size in excess of about 0.1 micron, whereby the characteristics of the paper support are formed through polymerization of the resins without exposing the paper to heat.

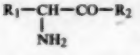
4,384,041

ASSAY METHOD OF ENZYME ACTIVITY

Kunio Matsumoto, Mishima; Toshiharu Noda, Shizuoka; Tadashiro Fujii, Mishima; Susumu Watanabe, Shizuoka; Kazuhiko Matsumoto, Mishima, and Shigeo Katsuragi, Shizuoka, all of Japan, assignors to Toyo Jozo Kabushiki Kaisha, Shizuoka, Japan

Filed Apr. 7, 1981, Ser. No. 251,784
Claims priority, application Japan, Apr. 7, 1980, 55-46085; Dec. 4, 1980, 55-171263
Int. Cl.³ C12N *11/00;* C12Q *1/26, 1/28, 1/36*
U.S. Cl. 435—24 **10 Claims**

1. Assay method for leucine aminopeptidase which comprises reacting a substrate amide compound or salt thereof of the formula



wherein R_1 is lower alkyl and R_2 is substituted methylamino or D-amino acid residue, with a sample for leucine aminopeptidase assay, oxidizing the thus-liberated, substituted methylamine or D-amino acid by the corresponding oxidase, and measuring the thus-consumed oxygen or liberated hydrogen peroxide.

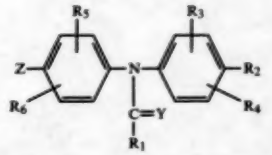
4,384,042

METHOD AND TEST COMPOSITION FOR DETERMINATION OF HYDROGEN PEROXIDE

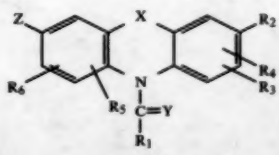
Akira Miike; Yoshiaki Shimizu, both of Shizuoka; Toshio Tatano, Numazu, and Katsuyuki Watanabe, Higashimurayama, all of Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

Filed Jul. 29, 1981, Ser. No. 288,123
Claims priority, application Japan, Jul. 30, 1980, 55-103665
Int. Cl.³ C12Q *1/26, 1/28, 1/44, 1/48, 1/54, 1/60, 1/62*
U.S. Cl. 435—25 **14 Claims**

1. A method for the determination of hydrogen peroxide in a sample which comprises reacting the hydrogen peroxide with a chromogen represented by the formulae

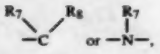


or



wherein Z represents hydroxyl, amino or substituted amino, Y represents oxygen atom or sulfur atom, R_1 represents hydrogen, alkyl, alkenyl, aryl, amino or mono-substituted amino, R_2

represents hydrogen, hydroxyl, alkyl, alkenyl, aryl, amino, alkyl-amino or alkoxy, R_3, R_4, R_5 and R_6 represent hydrogen, alkyl, alkenyl, acyl, aryl, halogen, sulfo, nitro, carboxyl, hydroxyl, hydroxyalkyl or alkoxy, R_3 and R_4 or R_5 and R_6 may form alkenylene, X represents —S—, —O—,



R_7 and R_8 represent hydrogen, alkyl, alkenyl or aryl, in the presence of peroxidase and measuring the absorbancy of the reaction solution in the visible ray region.

4,384,043

PROCESS FOR PRODUCING THE ANTIBIOTIC NOSIHEPTIDE

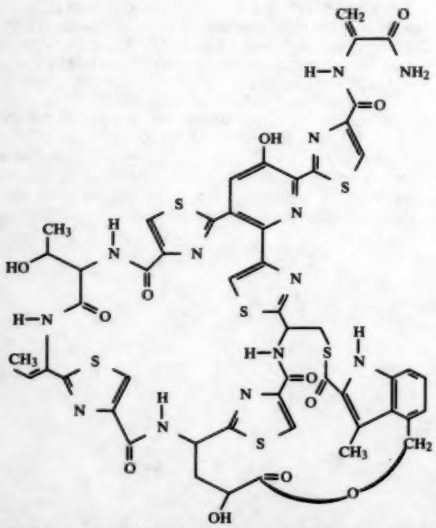
John H. E. J. Martin, New City, N.Y.; David P. Labeda, Monsey; Joseph D. Korshalla, Pearl River; Donald B. Borders, Suffern, all of N.Y., and Raymond T. Testa, Cedar Grove, N.J., assignors to American Cyanamid Company, Stamford, Conn.

Filed Sep. 2, 1981, Ser. No. 298,674

Int. Cl.³ C12P *21/04, 17/18;* C12N *1/20;* C12R *1/465*

U.S. Cl. 435—71 **7 Claims**

1. A process for preparing the antibiotic nosiheptide, having the formula:



which comprises cultivating *Streptomyces glaucogriseus,* having the identifying characteristics of NRRL 12514, and the nosiheptide-producing mutants thereof, under aerobic conditions, in a sterile liquid medium containing assimilable sources of carbon, nitrogen and inorganic anion and cation salts, until substantial antibiotic activity is imparted to said medium by the production of nosiheptide and then recovering the antibiotic therefrom.

4,384,044

PRODUCTION OF MICROBIAL POLYSACCHARIDES

Leo Kim, Alamo, Calif., and Stuart G. Ash, Sittingbourne, England, assignors to Shell Oil Company, Houston, Tex.

Filed Aug. 18, 1981, Ser. No. 293,920

Claims priority, application United Kingdom, Aug. 19, 1980, 8026977

Int. Cl.³ C12P *19/04;* C12R *1/38;* C12N *11/14*

U.S. Cl. 435—101 **9 Claims**

1. A process for the production of a polysaccharide wherein a microorganism species selected from Pseudomonas spp. NCIB 11592 or NCIB 11264 is supported on a porous, particulate-insert support, the pore size being greater than about 0.5 μm, to form an immobilized cell system in which the microorganism cells are dispersed through the pores of the inert support system, aqueous nutrients medium is passed through the immobilized cell system, and polysacchardide-containing medium is withdrawn from the system.

4,384,045

ACTIVATION OF A SILICEOUS CARRIER FOR ENZYME IMMOBILIZATION

Guan-Huei Ho, and Chiang-Chang Liao, both of Tillsonburg, Canada, assignors to Borden, Inc., Columbus, Ohio

Filed Aug. 20, 1980, Ser. No. 179,915

Claims priority, application Canada, May 21, 1980, 352341

Int. Cl.³ C12N *11/14, 11/18, 11/06*

U.S. Cl. 435—176 **22 Claims**

1. A process for producing a carrier for immobilization of enzyme material by reacting a particulate, finely divided siliceous inorganic carrier material to activate its surface areas with hydroxyl groups, comprising

reacting the siliceous carrier material at a pH above 10 with a strongly basic solution in which said carrier material retains its particulate form, for a sufficient time to generate surface groups on the particles of the carrier material of the type SiO^-M^+, where M is a metallic ion, an ammonium ion, or represents a mixture thereof, and then

replacing the M^+ with H by reacting the carrier material with a strongly acid solution, so that the carrier surface has reactive hydroxyl groups disposed thereon.

4,384,046

METHOD OF PRODUCING MULLITE CERAMIC FIBER PRODUCTS

Kashiro Nakagami, Toyohashi, Japan, assignor to Isolite Babcock Refractories Co., Ltd., Aichi, Japan

Filed Nov. 13, 1981, Ser. No. 320,993

Claims priority, application Japan, Nov. 21, 1980, 55-164198

Int. Cl.³ C01B *33/36;* C04B *35/18, 35/64, 35/80*

U.S. Cl. 501—95 **1 Claim**

1. A method of producing mullite ceramic fiber products comprising blending of nitreous aluminosilicate fiber having an Al_2O_3 content of less than 72 weight percent and at least one compound of fine crystals selected from the group consisting of polycrystalline high-alumina low-silica ceramic fiber having an Al_2O_3 content of more than 72 weight percent and which may consist of mullite crystals in an amount equal to the amount of its SiO_2 content, sol-state alumina, gel-state alumina, ultra-fine powdered alumina, and a material which produces fine crystals of alpha-Al_2O_3 as a result of heating; such that the resulting mixture has a total Al_2O_3 content of more than 72 percent by weight; and heating of the resulting mixture to a temperature of about 1300° C. to 1450° C. whereby mullite is present in the final product from about 80 to 96 weight percent and alpha-alumina is 0 to about 3 weight percent.

4,384,047

POROUS VINYLIDENE FLUORIDE POLYMER MEMBRANE AND PROCESS FOR ITS PREPARATION

William D. Benzinger, Eastown Township, Chester County, and Donald N. Robinson, Collegeville, both of Pa., assignors to Pennwalt Corporation, Philadelphia, Pa.

Continuation of Ser. No. 135,034, Mar. 28, 1980, abandoned. This application Jan. 22, 1982, Ser. No. 341,956

Int. Cl.³ B29D *27/04*; C08J *9/28*

U.S. Cl. 521—64 **12 Claims**

1. A process for preparing an ultrafiltration membrane of a resinous, film-forming polymer selected from the group consisting of (a) vinylidene fluoride homopolymer, (b) copolymers of at least 70 weight percent of vinylidene fluoride and up to 30 weight percent tri- or tetrafluoroethylene, and (c) a blend of no less than about 75 weight percent of either (a) or (b) with no greater than about 25 percent of a thermoplastic methyl methacrylate polymer said membrane having a surface layer containing a multiplicity of pores having a diameter within the range of from about 1 to about 100 millimicrons, and a support layer thicker than and having less resistence to fluid flow than said surface layer, said process comprising casting on a smooth solid surface a solution of said resinous, film forming polymer having a polymer concentration ranging from about 12 to about 35 weight percent, about 65 to about 80 weight percent of a solvent selected from the group consisting of triethyl phosphate, hexamethyl phosphoramide, 1-methyl-2-pyrrolidinone, dimethyl acetamide, dimethyl formamide, propylene carbonate and mixtures of said solvents, and from about 1 to about 10 weight percent of a non-solvent for said polymer selected from the group consisting of glycerol, ethylene glycol, phosphoric acid and mixtures thereof, to form a sheet, evaporating a portion of said liquid mixture from said sheet, and contacting said sheet with a liquid gelation medium.

7. The process of claim **1**, **2**, **3**, or **4** wherein the non-solvent is glycerol.

4,384,048

CHEMICAL BLOWING AGENT

Raymond J. Bathgate, Royston, England, assignor to FBC Limited, Hauxton, England

Division of Ser. No. 246,044, Mar. 20, 1981. This application Jul. 7, 1982, Ser. No. 396,061

Claims priority, application United Kingdom, Mar. 21, 1980, 8009658

Int. Cl.³ C09J *9/10*

U.S. Cl. 521—89 **15 Claims**

1. An expandable polymer composition comprising a thermoplastic polymer and a blowing agent composition comprising a mixture of a thermally decomposable blowing agent and an activator for the blowing agent characterized in that the mixture has been comminuted to a mean particle size of less than 5 micrometers, wherein said blowing agent and activator in said mixture are solids prior to comminution.

4,384,049

COMPOSITION AND PRODUCT COMPRISING A BLEND OF CHLORINATED POLYETHYLENES, A HEAT STABILZING AGENT A CROSS-LINKING AGENT AND A FOAMING AGENT

Karl Rametsteiner, Linz, Austria, assignor to Kunststoffwerk Karl Egger, Linz, Austria

Filed Apr. 13, 1981, Ser. No. 253,939

Claims priority, application Austria, Apr. 21, 1980, 2129/80

Int. Cl.³ C08L *23/28*; C08J *9/06*; B29D *27/00*

U.S. Cl. 521—90 **2 Claims**

1. A mixture for use in the manufacture of foamed plastic bodies, which comprises a base material consisting of a mixture of 40%, by weight, of linear chlorinated polyethylene containing 36%, by weight, of chlorine and 60%, by weight, of linear chlorinated polyethylene containing 42%, by weight, of chlorine, a heat-stabilizing agent selected from the group consisting of a hydrogen chloride acceptor and salt of lead, tin, calcium, cadmium and barium, with said hydrogen chloride acceptor being selected from the group consisting of organic phosphites, urea derivatives and compounds having reactive epoxide groups, a cross-linking agent and a foaming agent.

4,384,050

FLEXIBLE POLYURETHANE FOAM BASED ON MDI

James L. Guthrie, Ashton, Md., assignor to W. R. Grace & Co., New York, N.Y.

Filed Oct. 26, 1981, Ser. No. 314,554

The portion of the term of this patent subsequent to May 17, 2000, has been disclaimed.

Int. Cl.³ C08G *18/14*, *18/77*, *18/32*

U.S. Cl. 521—137 **19 Claims**

1. A flexible polyurethane foam based on methylene diphenyl isocyanate made by mixing together and reacting an aqueous phase and

a resin phase comprising a prepolymer derived from

(a) a poly(oxy C_{2-4} alkylene) diol having at least about 50% by weight of oxyethylene groups and a nominal number average molecular weight of about at least 1100, said diol having nominally two hydroxyl equivalents per mole,

(b) a diphenylmethane diisocyanate-containing isocyanate product with a functionality of greater than 2.0 comprising a mixture of a major amount of pure diphenylmethane diisocyanate and minor amounts of carbodiimides and trifunctional cycloadducts of diphenylmethane diisocyanate, and

(c) a monomeric polyol crosslinking agent having 3 or 4 hydroxyl equivalents per mole,

said isocyanate containing product comprising less than 50% by weight of the prepolymer,

said diol and polyol crosslinking agent being present in a mole ratio in the range of about 4:1 to 8:1, and

the ratio of the isocyanate equivalents to the total hydroxyl equivalents being in the range of about 2.5:1 to 3.5:1.

4,384,051

FLEXIBLE POLYURETHANE FOAM BASED ON MDI

James L. Guthrie, Ashton, Md., assignor to W. R. Grace & Co., New York, N.Y.

Filed Oct. 26, 1981, Ser. No. 314,555

Int. Cl.³ C08G *18/14*, *18/32*, *18/77*

U.S. Cl. 521—137 **17 Claims**

1. A flexible polyurethane foam based on methylene diphenyl isocyanate made by mixing together and reacting an aqueous phase and

a resin phase comprising a prepolymer derived from

(a) a poly(oxy C_{2-4} alkylene) diol having at least about 50% by weight of oxyethylene groups and a nominal number average molecular weight of about less than 2000, said diol having nominally two hydroxyl equivalents per mole,

(b) a diphenylmethane diisocyanate-containing isocyanate product with a functionality of greater than 2.0 comprising a mixture of a major amount of pure diphenylmethane diisocyanate and minor amounts of carbodiimides and trifunctional cycloadducts of diphenylmethane diisocyanate, and

(c) a polymeric poly(oxy C_{2-4} alkylene) polyol crosslinking agent having 3 or 4 hydroxyl equivalents per mole, and having a number average molecular weight of at least 500

said isocyanate containing product comprising less than 50% by weight of the prepolymer,

said polymeric polyol crosslinking agent being present so that the hydroxy equivalents constitute 5 to 35 mole % of the total hydroxy equivalents in the diol and polyol,

the ratio of the isocyanate equivalents to the total hydroxyl equivalents being in the range of about 2.5:1 to 3.5:1.

4,384,052

POLYURETHANES PRODUCED FROM AN ADDUCT OF AN ORGANIC POLYISOCYANATE AND CERTAIN AMINES

Robert L. McBrayer; John G. Demou, both of Lincoln Park; Peter T. Kan, Plymouth, all of Mich., and William E. Volz, Baton Rouge, La., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

Filed Jun. 8, 1981, Ser. No. 271,807

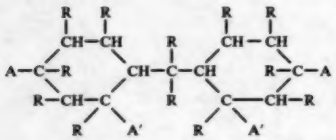
Int. Cl.³ C08G 18/14, 18/77

U.S. Cl. 521—162 **10 Claims**

1. A polyurethane molded foam or elastomer product prepared in the presence of or in the absence of a blowing agent by the reaction of a polyol with an organic polyisocyanate composition comprising the reaction product of (a) an organic polyisocyanate and (b) 0.5 percent by weight to 5 percent by weight of a reactive diamine selected from the group consisting of

(I) isophorone diamine and

(II) a reactive diamine of the formula:



wherein R is H or alkyl of 1 to 4 carbon atoms and A and A′ are NH_2 or H with the proviso that in each ring either A or A′ is NH_2, not both, and when A or A′ is NH_2, then the R attached to that carbon atom is H,

said reaction product prepared at a temperature of between 135° C. and 200° C.

4,384,053

PRODUCT FOR MANUFACTURING CLUTCH OR BRAKE LININGS, AND METHOD OF PREPARING SAME

Fernand Peilloud, Hery sur Alby, and Gerard Gladel, Garges les Gonesse, both of France, assignors to Societe Nouvelle de Roulements, Anncey Cedex and Regie Nationale des Usines Renault, Boulogne Billancourt, both of, France

Continuation of Ser. No. 48,251, Jun. 13, 1979, abandoned. This application Jan. 16, 1981, Ser. No. 225,533

Claims priority, application France, Jun. 20, 1978, 78 18357

Int. Cl.³ C08K 3/14, 7/00

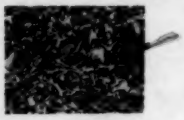
U.S. Cl. 523—153 **7 Claims**

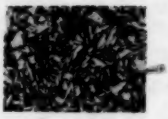
1. A friction material usable as a friction lining for a brake or a clutch, said material having a high resistance to wear and consisting essentially of a mixture of:

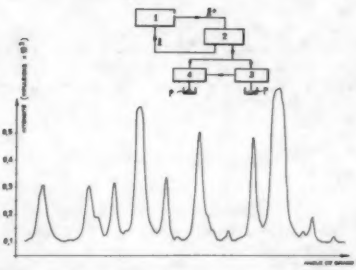
30–85% by weight of quenched fibrous steel fibers which consist of a fine fibrous steel powder having a carbon content by weight ranging from 0.95% to 1.10% and a chromium content by weight ranging from 1.30% to 1.60%, said steel powder being quenched in such a manner that the micrographic structure observed in an examination plane intersecting a metal particle shows a fine distribution of iron and chromium spherular carbides having the formula $(Fe, Cr)_3C$ homogeneously disposed in a mixed matrix of high-strength martensite and 10–20% of metastable austenite in volume, the structural matrix of each steel fiber showing a high tensile strength ranging from 1,200 MPa to 2,000 MPa;

10–20% by weight of a thermosetting binder; and

5–30% by weight of a friction additive selected from the group consisting of abrasive material, solid lubricants, noise and vibration absorbers, thermostabilizers, polymerizable binders and metallic oxides or a mixture of such products.







4,384,054

ASBESTOS-FREE FRICTION MATERIAL

Klaus Moraw, and Hans-Günther Paul, both of Duisburg, Fed. Rep. of Germany, assignors to Rutgerswerke Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Oct. 1, 1981, Ser. No. 307,627

Claims priority, application Fed. Rep. of Germany, Oct. 9, 1980, 3038129

Int. Cl.³ C08J 5/14; C09K 3/14

U.S. Cl. 523—156 **8 Claims**

1. An asbestos-free friction material comprising 5 to 25% by weight of a hardenable binder or binder mixture, a reinforcing fibrous material and conventional fillers, abrasives and lubricants, the said reinforcing material consisting essentially of 1 to 50% by weight of diabase fibers with an average fiber length of 100 to 750 μm and 1 to 44% by weight of metal fibers, metal wool or metal lamella, chips or pieces.

4,384,055

HARD VINYL CHLORIDE RESIN COMPOSITION FOR INFORMATION SIGNAL RECORDING MEDIA

Takao Okuda, Yokohama, and Nobuhide Hada, Kamakura, both of Japan, assignors to Nippon Zeon Co. Ltd., Tokyo, Japan

Filed Sep. 16, 1981, Ser. No. 302,849
Claims priority, application Japan, Sep. 16, 1980, 55-128220
Int. Cl.³ C08K 3/04; C08L 27/06
U.S. Cl. 523—174 3 Claims

1. A hard vinyl chloride resin composition for information signal recording media, said composition consisting essentially of

(A) 100 parts by weight of a copolymer having a specific viscosity of 0.16 to 0.31 and composed of 75 to 99% by weight of vinyl chloride, 1 to 10% by weight of ethylene and 0 to 15% by weight of another monomer copolymerizable with said monomers, and/or a polymer mixture having a specific viscosity of 0.16 to 0.31 and composed of at least two polymers selected so that the proportions of monomer components are the same as above, and

(B) 15 to 30 parts by weight of carbon black having an oil absorption of 300 to 400 ml/100 g and a surface area of at least 900 m^2/g.

4,384,056

AQUEOUS DISPERSIONS BASED ON (METH)ACRYLIC ACID ALKYL ESTER POLYMERS WITH TWO PRONOUNCED, SUBSTANTIALLY NON-OVERLAPPING PEAKS IN THE PARTICLE SIZE DISTRIBUTION WITHIN SPECIFIC PARTICLE SIZE RANGES, AND A PROCESS FOR THE PREPARATION AND USE THEREOF

Adolf Schmidt, Cologne; Günter Kolb, and Werner Clarenz, both of Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Apr. 28, 1981, Ser. No. 258,285
Claims priority, application Fed. Rep. of Germany, May 8, 1980, 3017543
Int. Cl.³ C08L 35/02
U.S. Cl. 523—221 9 Claims

1. An aqueous dispersion containing as binder at least one film-forming polymer comprising copolymerized units of from 48 to 60% by weight n-butyl acrylate; from 35 to 48% by weight styrene; from 4 to 6% by weight methacrylic acid or acrylic acid or a mixture thereof, and from 0 to 13% by weight N-methoxymethylmethacrylamide, the sum of the percentages by weight being 100, said polymer being in the form of larger, non-agglomerated, spherical particles or main spheres and smaller, non-agglomerated spherical particles or filler spheres, wherein the filler spheres have an average particle diameter d_F measured using an electron microscope of from 50 to 150 nanometers and the average diameter of the main spheres d_H is at least 140 mn—there are two pronounced, substantially non-overlapping peaks in the particle size distribution within the specified particle size ranges and the ratio of the total mass of the polymer composed of main spheres M_H to the total mass of the polymer composed of filler spheres M_F is

$$M_H:M_F = 20:1 \text{ to } M_H:M_F = 1:20$$

and wherein at least 70% of the number of main spheres and at least 70% of the number of filler spheres lie in the range of ±25% of the respective given average value of d_H or d_F and wherein, if the dispersion contains several differing polymers with respect to chemical and percentage composition, they are mutually compatible.

4,384,057

COMPOSITION CONTAINING A CONDENSATION PRODUCT OF 1,3-DIIMINOISOINDOLINE AND CYANOACETIC ANILIDE USED TO PIGMENT AN ORGANIC LACQUER RESIN

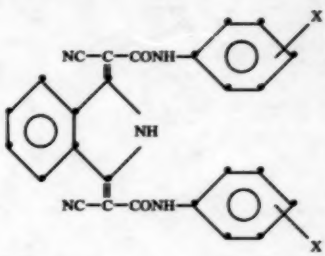
Jost von der Crone, Richen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed May 5, 1980, Ser. No. 146,581
Claims priority, application Switzerland, May 14, 1979, 4467/79
Int. Cl.³ C08K 5/20, 5/34
U.S. Cl. 523—456 2 Claims

1. A pigmented composition comprising

(a) a high-molecular weight polymer lacquer resin selected from the group consisting of an alkyd-melamine-formaldehyde resin, an alkyd-urea-formaldehyde resin, a thermoplastic acrylic resin, a thermoset acrylic resin, an epoxy resin and a polyurethane resin, into which is incorporated

(b) an effective amount of a finely dispersed pigment compound of formula I



(I)

in which X is a meta- or para-positioned fluorine, chlorine or bromine atom, which pigment compound has a specific surface area of at least 10 m^2/g and which compound is insoluble in said polymer.

4,384,058

NAIL LACQUER COMPOSITIONS

Gary Galante, Ramsey, N.J., assignor to Avon Products, Inc., Suffern, N.Y.

Continuation of Ser. No. 100,192, Dec. 4, 1979, abandoned. This application Mar. 23, 1981, Ser. No. 246,775
Int. Cl.³ A61K 7/04
U.S. Cl. 524—32 4 Claims

1. A nail lacquer composition consisting essentially of a film-forming agent comprising nitrocellulose as the major component, a compatible solvent, and a styrene-acrylonitrile-acrylic terpolymer in an amount sufficient to increase the gloss and wear resistance of the composition when dry.

4,384,059

HALOGEN-CONTAINING RESIN COMPOSITIONS STABILIZED BY METHIONINE DERIVATIVES

Nobuyoshi Kitamura, Sagamihara; Nobuo Ito, Ooisomachi, and Koji Takeuchi, Yokohama, all of Japan, assignors to Ajinomoto Company Incorporated, Tokyo, Japan

Filed Feb. 12, 1982, Ser. No. 348,274
Claims priority, application Japan, Feb. 26, 1981, 56-27270; Feb. 26, 1981, 56-27271
Int. Cl.³ C08K 5/37
U.S. Cl. 524—100 5 Claims

1. A halogen-containing resin composition which comprises (A) a halogen-containing resin (B) as a stabilizer assistant an amount sufficient for thermal stabilization of at least one of methionine derivatives selected from the group consisting of methionine hydantoic acid and methionine hydantoin and (C)

at least one of stabilizers selected from the group alkaline earth metal, zinc and organo tin compounds.

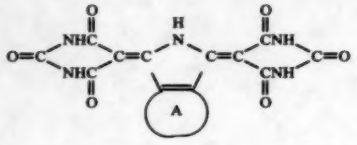
4,384,060

COLORED POLYESTER COMPOSITION

Shingo Araki, Settsu, and Tsutomu Igase, Suita, both of Japan, assignors to Dainippon Ink & Chemicals, Inc., Tokyo, Japan

Filed Feb. 24, 1981, Ser. No. 237,611
Claims priority, application Japan, Feb. 27, 1980, 55-22840
Int. Cl.³ C08K 5/34; C08L 67/02
U.S. Cl. 524—101 10 Claims

1. A melt-kneaded colored aromatic polyester shaped article comprising an aromatic polyester and as a coloring agent, a barbituric acid-type pigment of the formula



wherein

represents an o-phenylene group or a 1,2- or 2,3-naphthylene group, each of which may have a phenyl group as a substituent, said pigment being dissolved in said aromatic polyester.

4,384,061

THERMOSETTING POLYCONDENSATES CONTAINING AMIDE AND IMIDE GROUPS, AND THEIR USE

Udo Reiter, Mutterstadt; Helmut Lehmann, Reinbek; Walter Disteldorf, and Hans-Uwe Schenck, both of Wachenheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

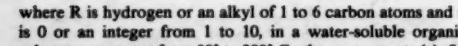
Filed Sep. 21, 1981, Ser. No. 304,269
Claims priority, application Fed. Rep. of Germany, Oct. 2, 1980, 3037269
Int. Cl.³ C08K 5/34; C08L 79/08
U.S. Cl. 524—104 3 Claims

1. A thermosetting polycondensate, containing amide groups and imide groups, which is obtained by reacting

(a) 1,2,3,4-butanetetracarboxylic acid or its anhydride with

(b) one or more aliphatic, cycloaliphatic or aromatic diamines and

(c) one or more oxadicarboxylic acids or oxadicarboxylic acid esters of the general formula



where R is hydrogen or an alkyl of 1 to 6 carbon atoms and n is 0 or an integer from 1 to 10, in a water-soluble organic solvent or water at from 80° to 200° C., the components (a), (b) and (c) being employed in a molar ratio of (b):(a):(c)=1:(0-.6-1):(0.1-0.6).

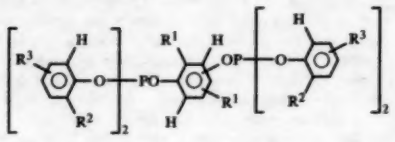
4,384,062

HYDROLYTICALLY STABLE DIPHOSPHITES USEFUL AS ANTIOXIDANTS

Wadim Batorewicz, New Haven, Conn., assignor to Uniroyal, Inc., New York, N.Y.

Division of Ser. No. 193,220, Oct. 1, 1980, Pat. No. 4,341,721.
This application Dec. 11, 1981, Ser. No. 329,630
Int. Cl.³ C08K 5/52; C07F 9/141
U.S. Cl. 524—128 13 Claims

1. A composition comprising an organic polymer and an antioxidatively effective amount of a diphosphite having the structural formula



wherein R^1 and R^2 may be the same or different and are C_4 to C_{12} tertiary alkyl or C_9 to C_{14} tertiary aralkyl; R^3 is hydrogen, C_1 to C_{18} alkyl or C_7 to C_{18} arakyl.

4,384,063

POLYPHENYLENE ETHER RESIN COMPOSITIONS CONTAINING ANTISTATIC AGENTS

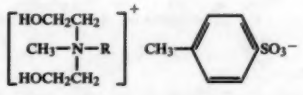
Bruce A. Luxon, Delmar, N.Y., assignor to General Electric Company, Pittsfield, Mass.

Filed Aug. 11, 1981, Ser. No. 291,923
Int. Cl.³ C08K 5/19
U.S. Cl. 524—159 8 Claims

1. An antistatic thermoplastic resin composition which comprises:

(a) a polyphenylene ether resin with or without a styrene resin;

(b) a minor, effective amount of an antistatic agent comprising a compound having the formula



wherein R is octyl; and

(c) a minor, effective amount of an enhancer for the antistatic agent (b), comprising a second antistatic agent which is a polyethylene glycol ester.

4,384,064

VINYL COPOLYMER ADHESIVES

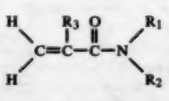
Jimmy R. Trotter; James M. Hawkins, and Richard L. McConnell, all of Kingsport, Tenn., assignors to National Starch And Chemical Corporation, Bridgewater, N.J.

Filed Jun. 2, 1980, Ser. No. 155,048
Int. Cl.³ C08K 5/17, 5/05, 5/06, 5/09
U.S. Cl. 524—239 16 Claims

1. A spreadable solid adhesive composition comprising

(A) from about 10 to about 30% by weight of a copolymer of

(a) about 50–98% by weight of an acrylamide of the formula



wherein R_1 and R_2 are each H or an alkyl group having 1 to 8 carbon atoms and R_3 is H or CH_3, and

(b) about 50–2% by weight of an unsaturated mono or dicarboxylic acid having 2 to 6 carbon atoms or an alkali metal salt thereof, said copolymer having an inherent viscosity of about 0.1–3.0,

(B) from about 1 to about 10% by weight of a gelling agent selected from the group consisting of (1) dibenzal sorbitol, (2) alkali metal salts of saturated or unsaturated aliphatic acids having from 12 to 20 carbon atoms, and (3) calcium or magnesium salts of saturated or unsaturated aliphatic acids having from 12 to 20 carbon atoms complexed with the tetrasodium salt of ethylenediaminetetraacetic acid, and

(C) from about 67 to about 89% by weight of a solvent selected from water and mixtures of at least one alcohol having 1 to 4 carbon atoms and water.

4,384,065

HIGH GLOSS WATER-BASE COATING COMPOSITION

Jack Y. Wong, 26333 Aric La., Los Altos Hills, Calif. 94022

Continuation-in-part of Ser. No. 190,604, Sep. 25, 1980, Pat. No. 4,335,163. This application Jun. 9, 1982, Ser. No. 386,746

The portion of the term of this patent subsequent to Jun. 15, 1999, has been disclaimed.

Int. Cl.³ B05D 5/00; C09D 3/64, 11/06, 11/10

U.S. Cl. 524—322 46 Claims

1. A water-base coating composition comprising:

(a) 20 to 65% by weight water;

(b) 20 to 75% by weight of at least two vinyltoluene copolymers containing safflower oil fatty acid, isophthalic acid polyester and trimellitic acid;

(c) 1 to 10% by weight of a basic solution having a pH of 7.8 to 10.5;

(d) 0.5 to 5% by weight co-solvent A which is selected from the group consisting of isopropyl alcohol, butanol and glycol ether;

(e) 0.5% to 5% by weight co-solvent B which is a different glycol ether;

(f) 0.1 to 1.6% by weight water soluble drying agents; and

(g) pigments.

4,384,066

IONIC ELASTOMER BLENDS WITH SYNDIOTACTIC POLYBUTADIENE

Francis X. O'Shea, Naugatuck, Conn., assignor to Uniroyal, Inc., New York, N.Y.

Continuation of Ser. No. 209,367, Nov. 24, 1980, Pat. No. 4,332,861. This application Aug. 13, 1981, Ser. No. 292,542

Int. Cl.³ C08K 5/09

U.S. Cl. 524—394 15 Claims

1. A composition comprising:

(a) a neutralized sulfonated EPDM terpolymer;

(b) about 50 to about 150 parts per hundred parts of terpolymer of a syndiotactic 1,2-polybutadiene;

(c) about 5 to about 40 parts per hundred parts of terpolymer of a preferential plasticizer;

(d) 0 to about 150 parts per hundred parts of terpolymer of an inorganic particulate filler; and

(e) 0 to about 150 parts per hundred parts of terpolymer of a low polarity process oil.

4,384,067

MINERAL-FILLED POLYCARBONATE COMPOSITIONS OF IMPROVED IMPACT STRENGTH

Herbert L. Rawlings, New Martinsville, W. Va., and Gerard E. Reinert, McMurray, Pa., assignors to Mobay Chemical Corporation, Pittsburgh, Pa.

Filed Nov. 19, 1981, Ser. No. 323,015

Int. Cl.³ C08L 67/02, 69/00, 23/24

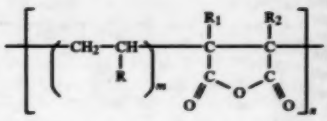
U.S. Cl. 524—493 8 Claims

1. A filled molding composition comprising:

(a) an aromatic polycarbonate resin and

(b) poly(alkylene) terephthalate wherein alkylene groups contain from 2 to 10 carbon atoms and

(c) a polyanhydride resin characterized by the structural formula



wherein R is selected from the group consisting of a phenyl radical, an alkyl substituted phenyl radical and an alkyl radical having more than 4 carbon atoms, m is an integer of from 1 to 3, R_1 and R_2 independently are a hydrogen atom or a C_1–C_6 alkyl and n is an integer of from 1 to 200 and

(d) a mineral filler having a maximum particle size under 100 microns wherein said polyanhydride resin is present at an amount between 0.5 and 5% relative to the weight of the composition, and wherein said aromatic polycarbonate and said poly(alkylene) terephthalate relate by weight from 10:1 to 1:2.

4,384,068

PASTY ORGANOPOLYSILOXANE COMPOSITIONS THERMOSETTING INTO ELASTOMERS

Noël Bouverot, Saint Symphorien D'Ozon; Paul Médard, Oullins, and Alain Viale, Venissieux, all of France, assignors to Rhone-Poulenc Industries, Paris, France

Filed Jan. 7, 1982, Ser. No. 337,843

Claims priority, application France, Jan. 7, 1981, 81 00115

Int. Cl.³ C08K 3/34

U.S. Cl. 524—493 9 Claims

1. A pasty organopolysiloxane composition of matter having a penetration ranging from 80 to 400, comprising an intimate admixture of:

(A) 100 parts by weight of a diorganopolysiloxane oil having a viscosity of 500 to 300,000 mPa·s at 25° C., consisting essentially of recurring units of the formula R_2SiO and blocked at each end of the chain by units of the formula $R_2R'SiO_{0.5}$, in which formulae the symbols R, which are identical or different, represent hydrocarbon radicals which are unsubstituted or substituted by halogen atoms or cyano groups and which have 1 to 8 carbon atoms, and the symbol R' represents the same radicals as the symbols R and also a hydroxyl radical, an alkoxy radical having from 1 to 4 carbon atoms or a β-methoxyethoxy radical;

(B) 7 to 85 parts by weight of finely divided, reinforcing silicas having a specific surface area of at least 50 m^2/g, said reinforcing silicas B comprising from 55 to 95% of precipitated silica and from 45 to 5% of pyrogenic silica;

(C) 1 to 20 parts by weight of a structuring inhibitor; and

(D) 0.1 to 4 parts by weight of an organic peroxide crosslinking agent.

4,384,069

PAPER-COATING COMPOSITIONS

Kurt Wendel, Ludwigshafen, and Günter Hirsch, Mutterstadt, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Continuation of Ser. No. 117,020, Jan. 30, 1980, abandoned. This application Aug. 31, 1981, Ser. No. 298,162

Claims priority, application Fed. Rep. of Germany, Feb. 15, 1979, 2905765

Int. Cl.³ C08L 33/20, 33/02, 31/04, 31/02

U.S. Cl. 524—521 3 Claims

1. A paper coating composition which contains, 100 parts by weight of a finely divided pigment, from 5 to 25 parts by weight of a copolymer A having a glass transition temperature

of from −40° to +50° C., in the form of an aqueous dispersion, and from 0.5 to 10 parts by weight of one or more high molecular weight-containing copolymers B, wherein the improvement comprises using, as the copolymer B a copolymer having a K value of 60–140, which is prepared by solution copolymerization, and which contains:

(a) from 20 to 70% by weight of copolymerized units of hydroxy-C_2–C_4-alkyl acrylates or hydroxy-C_2–C_4-alkyl methacrylates;

(b) from 10 to 50% by weight of copolymerized units of compounds selected from the group comprising acrylic acid, methacrylic acid, maleic acid and monoesters of maleic acid; and

(c) from 5 to 50% by weight of copolymerized units of compounds selected from the group comprising acrylonitrile, methacrylonitrile, C_1–C_4-alkyl acrylates or C_1–C_4-alkyl methacrylates, or vinyl esters of saturated C_2–C_4-carboxylic acids.

4,384,070

PIGMENTED, ANTIOXIDANT-CONTAINING SOLUTION COATING COMPOSITIONS

Joseph E. Gaske, Mt. Prospect; Thomas H. Plaisance, Wilmette, and Hannu K. Pennanen, Elk Grove, all of Ill., assignors to DeSoto, Inc., Des Plaines, Ill.

Filed Jul. 2, 1981, Ser. No. 279,725

Int. Cl.³ C08G *63/00*; C08L *81/04, 83/04*; C08K *3/34*

U.S. Cl. 524—597 **11 Claims**

1. A pigmented coating solution adapted to deposit an organic coating possessing improved resistance to ultraviolet radiation-induced auto-oxidation comprising, organic solvent including aromatic hydrocarbon solvent, said solvent having dissolved therein an aromatic hydrocarbon-soluble, normally liquid, polysulfide or polydisulfide derivative in which the terminal —SH groups have been reacted with a monofunctional reactant providing a C_1–C_{22} alkyl terminal group to provide a polysulfide or polydisulfide derivative which is essentially nonreactive, said solvent also having dissolved therein a polar polymeric binder which degrades by a photo-oxidative mechanism and which has limited compatibility with said derivative, said derivative being present in an amount of 0.5% to 5%, based on total solids, and said solvent having suspended therein a pigment which is ultraviolet absorptive and which is present in a pigment to binder weight ratio of at least about 0.1, said pigment protecting the bulk of a deposited coating, and said limited compatibility causing a heated film of said coating solution to stratify as the solvent evaporates to concentrate said polysulfide or polydisulfide at the surface of the cured coating to protect the same.

4,384,071

FIBERS AND FILLED MOLDING COMPOSITIONS FROM COPOLYIMIDES AND POLYIMIDES DERIVED FROM TETRAMETHYLCYCLOBUTANE-1,2,3,4-TETRACARBOXYLIC DIANHYDRIDE AND DIAMINES

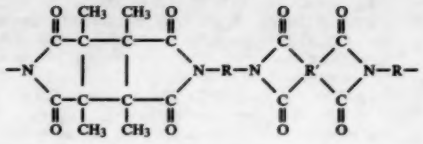
Tayseer S. Nimry, Wheaton; Ellis K. Fields, River Forest, and Edward E. Paschke, Wheaton, all of Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Filed Jul. 24, 1981, Ser. No. 286,695

Int. Cl.³ C08L *79/08*

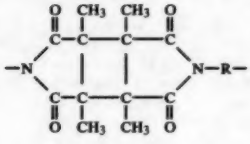
U.S. Cl. 524—600 **38 Claims**

1. A copolyimide molding composition of the following recurring structure:



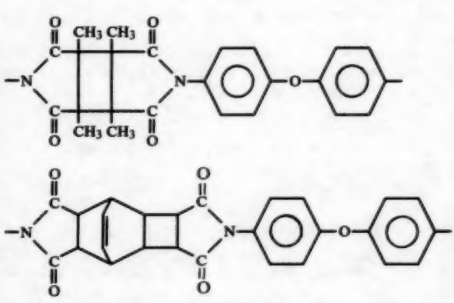
wherein R is a divalent aliphatic or aromatic hydrocarbon radical and R′ is a tetravalent aliphatic or aromatic hydrocarbon radical and the molding composition contains about 30 to 50 weight percent of glass fibers, glass beads or graphite.

13. A polyimide molding composition of the following recurring structure:



wherein R is a divalent aliphatic or aromatic hydrocarbon radical and the molding composition contains about 30 to 50 weight percent of glass fibers, glass beads or graphite.

20. A copolyimide molding composition of the following recurring structure:



wherein the molding composition contains about 30 to 50 weight percent of glass fibers, glass beads or graphite.

4,384,072

PROCESS FOR THE MANUFACTURE OF HALOGENATED ELASTOMERS

Neil F. Newman, Edison, and Ronald C. Kowalski, New Providence, both of N.J., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Sep. 30, 1981, Ser. No. 306,882

Int. Cl.³ C08F *8/22*

U.S. Cl. 525—356 **35 Claims**

1. In a process for the continuous halogenation of olefinically unsaturated rubber of the type which comprises continuously contacting said rubber with a halogen wherein the improvement comprises:

feeding said rubber to an extruder-reactor comprising (A) a feed zone, (B) a reaction zone, (C) a neutralization zone, (D) a wash zone, (E) an exit zone, and an extruder screw means transversing zones A through E inclusively, wherein:

(1) said feed zone characterized by sufficient pressure and temperature to form the rubber feed into a cohesive mass

and convey said mass past a restrictive dam means following said feed zone;

(2) said reaction zone comprises halogenation agent injection means at an extruder-reactor position filled with said rubber, means for producing a high degree of rubber mixing, and said restrictive dam means following said feed zone;

(3) said neutralization zone separated from said reaction zone by restrictive dam means and means for injecting neutralizing agents located at or immediately adjacent to the downstream end of said dam; and

(4) the materials of construction for said inlet zone, reaction zone and neutralization zone selected so as to minimize reaction with said halogenating agent, corrosion and concurrent undesirable side reactions.

4,384,073

CATIONIC ALKENYL AZABENZENE CHEMICALLY MODIFIED ASPHALTS

Anthony V. Grossi, Newark; Leon A. Hagelee, Minerva Park; Louis T. Hahn, and Alfred Marzocchi, both of Newark, all of Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Dec. 11, 1981, Ser. No. 329,898
Int. Cl.³ C08F 8/00; C08G 83/00
U.S. Cl. 525—54.5 15 Claims

1. A composition of matter consisting essentially of the product porduced by reacting an (i) alkenyl azabenzene with (ii) asphalt that has been preacted with a vinyl aromatic monomer of the formula $R_1—C(R_2)=C(R_2)—R_3$ wherein R_1 is an aromatic group containing six to twelve carbon atoms, R_2 is hydrogen or a C_1 to C_5 alkyl and R_3 is hydrogen, a C_1-C_5 alkyl or a radical selected from the group consisting essentially of $—CH_2OH$, —CHO, C(O)—X, —COOH and $—CH_2$-CN wherein X is a halogen and, optionally, a polyfunctional monomer of the formula $CH_2=CH—R_4—C(R_5)=C(H)—R_6$ where R_4 is a divalent aromatic group containing six to twelve carbon atoms, R_5 and R_6 have the same meaning as above with respect to R_2 and R_3 and a rubbery polymer and, optionally, (iii) a vinyl aromatic monomer.

4,384,074

CATIONIC CHEMICALLY MODIFIED ASPHALTS

Anthony V. Grossi, Newark; Leon A. Hagelee, Minerva Park; Louis T. Hahn, and Alfred Marzocchi, both of Newark, all of Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Dec. 11, 1981, Ser. No. 329,900
Int. Cl.³ C08F 289/00; C08G 83/00; C08H 5/00
U.S. Cl. 525—54.5 15 Claims

1. As a composition of matter, the product produced by reacting asphalt with a vinyl aromatic monomer and an amine of an acyclic unsaturated hydrocarbon and a rubbery polymer wherein said asphalt is a member selected from the group consisting of natural asphalt, petroleum asphalt, and petroleum tar.

4,384,075

CATIONIC ALKENYL AZABENZENE AND RUBBER MODIFIED ASPHALTS

Anthony V. Grossi, Newark; Leon A. Hagelee, Minerva Park; Louis T. Hahn, and Alfred Marzocchi, both of Newark, all of Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Dec. 11, 1981, Ser. No. 329,904
Int. Cl.³ C08F 289/00; C08G 83/00; C08H 5/00
U.S. Cl. 525—54.5 13 Claims

1. As a composition of matter, the product produced by reacting a mixture consisting essentially of an alkenyl azabenzene, asphalt, a vinyl aromatic monomer of the formula $R_1—C(R_2)=C(R_2)—R_3$, wherein R_1 is an aromatic group containing six to twelve carbon atoms, R_2 is hydrogen or a C_1 to C_5 alkyl and R_3 is hydrogen, a C_1 to C_5 alkyl or a radical selected from the group consisting of $—CH_2OH$, —CHO, —C(O)—X, —COOH, and $—CH_2—CN$ wherein X is halogen, and optionally, a polyfunctional monomer of the formula $CH_2=CH—R_4—C(R_5)=CH—R_6$ wherein R_4 is a divalent aromatic group containing six to twelve carbon atoms, and R_5 and R_6 have the same meaning as described above with respect to R_2 and R_3, and a rubbery polymer.

4,384,076

POLYCARBONATE RESIN COMPOSITION HAVING IMPROVED PROPERTIES

Osamu Ohara, and Kazuo Kishimoto, both of Matsuyama, Japan, assignors to Teijin Chemicals Ltd., Tokyo, Japan

Filed Jan. 25, 1982, Ser. No. 342,592
Claims priority, application Japan, Jan. 27, 1981, 56-9604
Int. Cl.³ C08L 51/00, 69/00
U.S. Cl. 525—67 8 Claims

1. A polycarbonate resin composition comprising as main components

(A) 100 parts by weight of a polycarbonate resin produced by reacting a dihydric phenol with a carbonate precursor,

(B) 0.3 to 10 parts by weight of a polyethylene resin selected from the group consisting of low-density polyethylene, medium-density polyethylene, high-density polyethylene and mixtures thereof,

(C) 0.3 to 10 parts by weight of an elastomeric acrylic graft copolymer resin composed of a crosslinked acrylic copolymer containing not less than 3% by weight of butadiene as a comonomer and being free from ethylene as a trunk polymer and, grafted thereto, at least one grafting monomer selected from the group consisting of styrene, alkyl acrylates and alkyl methacrylates, and

(D) 0.3 to 10 parts by weight of an isobutylene copolymer rubber composed of a major amount of isobutylene and a minor amount of isoprene, the total amount of (B), (C) and (D) being 2 to 20 parts by weight.

4,384,077

PRODUCTION OF ACRYLATE IMPACT RESISTANT MOLDABLE THERMOPLASTIC

Warren H. Gift, Morrisville, Pa., assignor to Plaskolite, Inc., Columbus, Ohio

Continuation of Ser. No. 137,618, Apr. 7, 1980, abandoned. This application Sep. 11, 1981, Ser. No. 301,246
Int. Cl.³ C08L 33/08, 33/12, 51/00
U.S. Cl. 525—81 8 Claims

1. A process for the manufacture of an extrudable thermoplastic acrylate resin composition in which an acrylate elastomer is incorporated with a principal proportion of a thermoplastic acrylate polymer matrix, including the steps of:

producing, by a bulk polymerization, a cast bulk of cross-linked elastomer from a monomer mix having a principal component of 50 to 99.9 weight percent of a lower alkyl acrylate; a minor proportion of 0.5 to 1.0 weight percent of a cross-linking co-monomer; and a minor proportion of 0.05 to 1.0 weight percent of a graft-linking co-monomer;

finely dividing the bulk elastomer into fine particles having a size ranging from about 500 A to 3000 A;

compounding approximately one to five parts by weight of said finely divided elastomer with one part by weight of a catalyzed monomer mixture which includes methyl methacrylate as a principal component;

polymerizing the catalyzed monomer mixture in the presence of said finely divided elastomer particles to produce a "mass I" in which a portion of said elastomer is graft-linked to a portion of the thermoplastic polymer produced in the polymerizing monomer mixture;

adding to the "mass I" from one to four parts by weight of a composition which is an acrylate polymer or pre-poly syrup or a mixture of polymer dissolved in monomer capable of forming an extrudable acrylate thermoplastic

polymer and compounding said composition with one part by weight of the "mass I"; and

extruding the composition which results from compounding the "mass I" with the composition capable of forming an extrudable acrylate thermoplastic through a die.

4,384,078

ANTISTATIC RESIN COMPOSITION

Masaki Ohya; Akio Kobayashi; Takeo Ogiwara, and Yoshikatsu Satake, all of Iwaki, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 72,846, Sep. 6, 1979, abandoned. This application Jun. 30, 1981, Ser. No. 279,211

Claims priority, application Japan, Sep. 6, 1978, 53-109284

The portion of the term of this patent subsequent to Nov. 24, 1998, has been disclaimed.

Int. Cl.³ C08F *279/02*

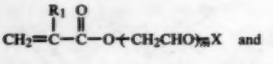
U.S. Cl. 525—296 **2 Claims**

1. An antistatic resin composition comprising:

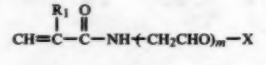
(A) 10 to 100 parts of a graft copolymer obtained by graft-polymerizing 20 to 95% of at least one grafting monomer selected from the group consisting of alkyl acrylates, alkyl methacrylates, acrylic acid, unsaturated nitriles, aromatic vinyl monomers, and vinyl chloride, onto 5 to 80% of a rubber trunk polymer which in turn is a copolymer of

50 to 99% of a member selected from the group consisting of conjugated dienes, alkyl acrylates and mixtures thereof,

1 to 50% of a polyalkylene oxide monomer selected from the group consisting of those represented by the following general formulae:



and



where R_1 is H or CH_3, X is H or an alkyl group of 1 to 9 carbon atoms and $6 \leqq m \leqq 50$, and 0 to 49% of a monomer selected from the group consisting of alkyl methacrylates, acrylic acid, methacrylic acid, unsaturated nitriles, aromatic vinyl monomers, 2-hydroxyethyl (meth)acrylate, itaconic acid, and sodium styrene-sulfonate; and

(B) 0 to 90 parts of a thermoplastic resin compatible with said graft copolymer (A), said rubber trunk polymer being 5 to 80% of the total of the graft copolymer (A) and the thermoplastic resin (B), all quantities expressed in percentages and parts being by weight.

4,384,079

USE OF URETHANE CURED NITRILE ELASTOMER AS OXIDIZED FUEL RESISTANT VULCANIZATES

Marvin A. Lemieux, Southfield, and Paul C. Killgoar, Jr., Livonia, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Oct. 13, 1981, Ser. No. 310,585

Int. Cl.³ C08F *8/30*

U.S. Cl. 525—329.3 **5 Claims**

1. A method for using a urethane cured nitrile vulcanizate in a system wherein a vulcanizate is contacted by sour hydrocarbon fuel employed in said system which comprises:

forming an article of desired configuration useful in said system of a vulcanizate the composition of which consists essentially of the reaction product of (i) 100 parts by weight of an acrylonitrile butadiene copolymer and (ii) a curative comprising 1–10 parts by weight of a urethane curing agent, wherein said urethane curing agent is the reaction product of a nitrosophenol and a diisocyanate; and

placing said article in said system wherein at least part of the time said system is in operation said article is contacted by said sour hydrocarbon fuel.

4,384,080

PROCESS FOR PREPARING HYDROGENATED HYDROCARBON RESIN

Saburo Matsubara, Yokohama, and Sakuya Iwai, Tokyo, both of Japan, assignors to Nippon Oil Company, Limited, Tokyo, Japan

Filed Jun. 29, 1981, Ser. No. 278,119

Claims priority, application Japan, Jul. 4, 1980, 55-90690

Int. Cl.³ C08F *8/04*

U.S. Cl. 525—338 **11 Claims**

1. A process for preparing a hydrogenated hydrocarbon resin comprising the steps of:

(A) polymerizing 100 parts by weight of a hydrocarbon mixture containing fractions of cracked oils obtained by cracking of petroleum and having boiling points ranging within from 140° to 280° C., said polymerization being effected in the presence of 0.1 to 3.0 parts by weight of a phenol and 0.01 to 5.0 parts by weight of a Friedel-Crafts catalyst at − (minus) to 30° C. + (plus) 60° C. to obtain a polymerized hydrocarbon mixture;

(B) adding 0.1 to 20 parts by weight of a basic substance to 100 parts by weight of said polymerized hydrocarbon mixture, to neutralize said polymerized hydrocarbon mixture at 10° to 100° C.;

(C) further adding an activated clay in an amount of 0.1 to 20 parts by weight based on 100 parts by weight of said polymerized hydrocarbon mixture, to treat said neutralized hydrocarbon mixture with said activated clay at 10° to 100° C.; and

(D) hydrogenating said hydrocarbon mixture treated with said activated clay.

4,384,081

PROCESS FOR PRODUCTION OF HYDROGENATED CONJUGATED DIENE POLYMERS

Yoichiro Kubo, Yokohama; Tetsu Ohishi, Tokyo, and Kiyomori Ohura, Kamakura, all of Japan, assignors to Nippon Zeon Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 213,369, Dec. 5, 1980. This application Jan. 25, 1982, Ser. No. 342,591

Claims priority, application Japan, Dec. 8, 1979, 54-159358

Int. Cl.³ C08K *3/10*

U.S. Cl. 525—339 **4 Claims**

1. A process for producing a hydrogenated conjugated diene polymer, which comprises hydrogenating the carbon-carbon double bonds of a polymer prepared by polymerizing 10 to 100% by weight of a conjugated diene monomer and 90 to 0% by weight of an ethylenically unsaturated monomer in a solvent using a supported catalyst composed of a hydrogenating catalyst comprising at least one element selected from the group consisting of Ru, Rh, Pd, Ir, Os, Pt, Ag and Au and supported on a carbon carrier having an average particle diameter of 5 mμ to 10μ and a specific surface area of 5 to 2000 m^2/g. and after the hydrogenation reaction has been completed, separating and recovering the hydrogenated polymer from the solution of the hydrogenated polymer without previously separating the catalyst from the solution, thereby creating an polymer containing said catalyst therein.

4,384,082

POLYMERIZATION PROCESS

Günter Bucksch, and Herbert Tyras, both of Duisburg, Fed. Rep. of Germany, assignors to Rutgerswerke Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Nov. 3, 1981, Ser. No. 317,586

Claims priority, application Fed. Rep. of Germany, Nov. 27, 1980, 3044592

Int. Cl.³ C08F 2/00, 110/00

U.S. Cl. 525—369 4 Claims

1. In a process for the polymerization of unsaturated aromatic hydrocarbons obtained as distillates from high-temperature coal tars boiling in the range of 140° and 210° C. or obtained by cracking of naphtha or gas oil or by the pyrolysis of cracking residues with BF_3-etherate or BF_3-phenolate as the polymerization catalyst, the improvement comprising using BF_3 alcoholates as a co-catalyst in a weight ratio of 0.1 to 1 parts of BF_3 alcoholates per one part of BF_3-etherate or BF_3-phenolate.

4,384,083

THERMOPLASTIC ADHESIVE

Richard L. Baker, Lambertville, Mich., assignor to Applied Polymer Technology, Incorporated, Ashland, Ohio

Filed Jul. 22, 1981, Ser. No. 286,050

Int. Cl.³ B65C 9/25; C09J 5/12

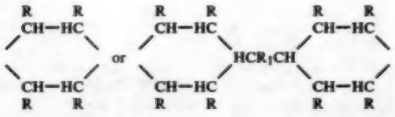
U.S. Cl. 525—420.5 28 Claims

1. An adhesive comprising at least about 10% by weight of a polyether-based thermoplastic polyurethane and another component selected from the group consisting of:

(A) a polyamide formed by the condensation of a compound of the formula

YN<Z>NH

where Z is selected from the group consisting of



where R is selected from the group consisting of hydrogen and alkyl groups having from 1 to 6 carbon atoms and R_1 is a divalent aliphatic hydrocarbon group having at least one carbon atom, Y is selected from the group consisting of hydrogen, $R'NH_2$ and R'OH where R' is a divalent alkylene radical having from 1 to 6 carbon atoms, with an amide forming derivative of a polymeric fat acid;

(B) a thermoplastic copolyester made from the polyesterification reaction between terephthalic acid, cyclohexanedimethanol, a diol in addition to cyclohexanedimethanol and a dibasic acid in addition to terephthalic acid; or

(C) a polyester-polyamide formed by heating a mixture of about 50 to about 99% by weight of component (A) with about 1 to about 50% by weight of component (B) at a temperature above the melting points of components (A) and (B) for a sufficient period to effect ester-interchange.

4,384,084

HARDENABLE EPOXIDE RESIN MIXTURES CONTAINING CYANOLACTAMS

Friedrich Lohse, Oberwil; Dieter Trachsler, Kaiseraugst, and Roland Moser, Basel, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Feb. 10, 1982, Ser. No. 347,402

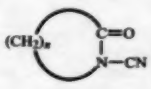
Claims priority, application Switzerland, Feb. 19, 1981, 1105/81

Int. Cl.³ C08G 59/40, 59/44, 59/60

U.S. Cl. 525—504 5 Claims

1. A hardenable mixture containing a polyepoxide compound with, on average, more than one epoxide group in the molecule, and a hardener, wherein the hardener corresponds to the formula I

(I)



in which n is an integer from 3 to 5 and the methylene carbon atoms are unsubstituted or substituted by one or two methyl or ethyl groups.

4,384,085

PREPARATION OF NYLON-6 WITH REDUCED LEVELS OF WATER-EXTRACTABLE MATERIAL

Harry A. Smith, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Jan. 6, 1982, Ser. No. 337,351

Int. Cl.³ C08G 69/16; C08J 9/26, 9/28

U.S. Cl. 526—62 11 Claims

1. A process for making linear moldable, film-forming or fiber-forming polyamide which process comprises melt polymerizing an initially present polymerizable ε-caprolactam-containing composition in a reaction vessel having its internal surfaces coated with an adherent coating of an organic polymer that remains chemically inert and adherent to said internal surfaces during the melt polymerization, whereby the resulting linear polyamide contains less than 5 weight percent of water-extractable materials.

4,384,086

LARGE PORE VOLUME OLEFIN POLYMERIZATION CATALYSTS

Max P. McDaniel, Bartlesville, Okla., and John J. Meister, Gainesville, Fla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 118,837, Feb. 6, 1980, Pat. No. 4,299,731. This application Jul. 21, 1981, Ser. No. 285,643

Int. Cl.³ C08F 4/02, 4/24

U.S. Cl. 526—106 7 Claims

1. A polymerization process comprising contacting ethylene or ethylene together with one of more 1-olefins under polymerization conditions with a catalyst obtained by a process comprising:

(a) contacting an aqueous alkali metal silicate comprising solution with an acid to produce an alkali-containing hydrogel,

(b) removing alkali from said alkali-containing hydrogel by washing with water to obtain a purified silica-containing hydrogel,

(c) admixing the so obtained purified silica-containing hydrogel with acid to obtain an acidified silica-containing hydrogel having a pH of 3.5 or less,

(d) drying said acidified silica-containing hydrogel until essentially all water is evaporated, to obtain a xerogel having a higher pore volume than a xerogel obtained by drying the not acidified hydrogel

(e) prior to, during or after said drying utilizing a chromium source to obtain a chromium-containing gel, and
(f) calcining said chromium containing gel.

4,384,087

COMPOSITION OF MATTER AND METHOD OF PREPARING SAME, CATALYST, METHOD OF PRODUCING THE CATALYST AND POLYMERIZATION PROCESS EMPLOYING THE CATALYST

Charles E. Capshew, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 132,731, May 24, 1980, Pat. No. 4,363,746, which is a continuation-in-part of Ser. No. 42,251, May 29, 1979, abandoned, which is a continuation-in-part of Ser. No. 927,079, Jul. 24, 1978, abandoned. This application Aug. 20, 1981, Ser. No. 294,602

Int. Cl.³ C08F *4/02, 10/00*

U.S. Cl. 526—114 **22 Claims**

1. A method for producing polymers comprising contacting at least one polymerizable compound selected from the group consisting of aliphatic mono-1-olefins, conjugated dienes, vinylaromatic compounds, and mixtures of any two or more thereof under polymerization conditions with a catalyst prepared by forming a first catalyst component by reacting

(A) a metal halide selected from the group consisting of metal dihalides and metal hydroxyhalide compounds of Group IIA and IIB, and

(B) a transition metal compound wherein the transition metal is titanium bonded to at least one radical selected from the group consisting of hydrocarbyl oxides, imides, amides, and mercaptides; and then reacting a solution of said first catalyst component with a second catalyst component selected from the group consisting of (a) organometallic compounds of Groups I, II, and III selected from the group consisting of lithium alkyls, Grignard reagents, dialkyl magnesium compounds, dialkyl zinc compounds, and hydrocarbylaluminum halides; (b) metal halides and oxyhalides of Groups IIIA, IVA, IVB, and VB; (c) hydrogen halides; and (d) organic acid halides selected from the group consisting of compounds having the formula

wherein R‴ is an alkyl, aryl, or cycloalkyl group or combination thereof and X is a halide; and then treating the solid product resulting from the combination of said first and second catalyst components with a titanium tetrahalide capable of enhancing the activity of said catalyst.

4,384,088

PROCESS FOR PREPARING POLYOLEFINS

Mitsuo Matsuno; Etsuo Kawamata, both of Kawasaki; Nobuyuki Kuroda, Yokohama; Kazuo Matsuura, and Mitsuji Miyoshi, both of Kawasaki, all of Japan, assignors to Nippon Oil Company, Limited, Tokyo, Japan

Filed Jun. 7, 1978, Ser. No. 913,507

Claims priority, application Japan, Jun. 17, 1977, 52-71080; Jun. 24, 1977, 52-74330

Int. Cl.² C08F *4/02, 10/02*

U.S. Cl. 526—116 **8 Claims**

1. A process for preparing polyolefins wherein olefins are polymerized or copolymerized using as catalyst a solid component and an organometallic compound of a metal of Group I to IV of the Periodic Table, characterized in that said solid component is a substance selected from the group consisting of a substance obtained by the copulverization of (1) a reaction product resulting from a heat reaction of magnesium oxide and aluminum trichloride at an Al/Mg atomic ratio of from 0.3 to 5 at a temperature of from 150° C. to 600° C. and (2) a titanium compound and/or a vanadium compound, and a substance obtained by copulverization of (1) a reaction product resulting from a heat reaction of magnesium oxide and aluminum trichloride at an Al/Mg atomic ratio of from 0.3 to 5 at a temperature of from 150° C. to 600° C., (2) a titanium compound and/or a vanadium compound and (3) an organic halide.

4,384,089

LOW TEMPERATURE POLYMERIZATION PROCESS

David C. Dehm, Thornton, Pa., assignor to Atlantic Richfield Company, Los Angeles, Calif.

Filed Oct. 15, 1981, Ser. No. 311,567

Int. Cl.³ C08F *4/64*

U.S. Cl. 526—159 **7 Claims**

1. In a process of preparing an alpha-monoolefin copolymer having superior hydrocarbon fluid friction-reducing properties by copolymerizing two or more alpha-monoolefins having 3 to 20 carbon atoms in the liquid state by means of a catalyst system comprising a first component which is a metal or metal compound of Groups IV-B, V-B or VIII of the Periodic Chart and an organo metal of a rare earth or metal from Groups I-A, II-A, or III-A of the Periodic Chart, the improvement comprising maintaining the temperature of the polymerization reaction mixture at a temperature of about 0° C. or lower until at least 15% by weight of the monomeric material present in the reaction mixture has been converted to polymer.

4,384,090

PROCESS FOR PRODUCING POLYACETYLENE

Jürgen Hocker, Bergisch-Gladbach, Fed. Rep. of Germany; Wolfgang Wieder, Lillebonne, France; Rudolf Merten, Leverkusen, and Josef Witte, Cologne, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jul. 31, 1981, Ser. No. 288,886

Claims priority, application Fed. Rep. of Germany, Aug. 9, 1980, 3030193

Int. Cl.³ C08F *4/68*

U.S. Cl. 526—169.2 **9 Claims**

1. Process for the production of polyacetylene, wherein acetylene is polymerized in an organic diluent, in the presence of an organometallic mixed catalyst which comprises

(a) a vanadium compound of the formula

wherein

R^1 represents halogen;

R^2 and R^3 may be the same or different and represent halogen or OR^5 wherein R^5 is C_1–C_{20} alkyl which is straight chain, cyclic or branched; and

(b) an aluminium alkyl compound.

4,384,091

PROCESS FOR THE PRODUCTION OF POLYMERS CONTAINING ACRYLONITRILE

Siegfried Korte, Leverkusen; Theo Neukam, Dormagen, and Carlhans Süling, Odenthal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Oct. 9, 1981, Ser. No. 310,575

Claims priority, application Fed. Rep. of Germany, Oct. 30, 1980, 3040969

Int. Cl.³ C08F *2/06*

U.S. Cl. 526—222 **7 Claims**

1. A process for the production of a polyacrylonitrile copolymer predominantly containing acrylonitrile units by polymerizing acrylonitrile containing up to 15 percent by weight of at least 1 olefinically unsaturated comonomer said monomer

selected from the group consisting of alkyl esters of (meth-)acyrlic acid and N-alkyl-substituted maleic acid imides, said comonomer being free from sulphonic acid groups, at a temperature of from 0° C. to 60° C. in an aliphatic hydrocarbon having a boiling point of from −10° to +80° C. or in a mixture of aliphatic hydrocarbons having boiling points in the range from −10° to +80° C. using an initiator system consisting essentially of from 0.8 to 8.0 mol percent of sulphur dioxide, from 0.1 to 2.0 mol percent of a hydroperoxide soluble in the reaction medium and from 0.01 to 1.0 mol percent of an acid soluble in the reaction system (based in each case on the quantity of monomer used), comprising polymerizing continuously with an average residence time from 10 to 70 minutes.

4,384,092

PROCESS FOR THE MANUFACTURE OF POLYTETRAFLUOROETHYLENE

Jean Blaise, Lyons, and Jean-Louis Herisson, Brignais, both of France, assignors to Produits Chimiques Ugine Kuhlmann, Courbevoie, France

Filed Apr. 24, 1981, Ser. No. 257,243
Claims priority, application France, May 14, 1980, 80 10793
Int. Cl.³ C08F 2/00, 14/18
U.S. Cl. 526—225 **5 Claims**

1. In the method of making polytetrafluoroethylene by polymerization of tetrafluoroethylene in the presence of a lithium salt of a perfluoroalkanesulfonic acid as the emulsifier to form an aqueous colloidal dispersion of the polymer, the improvement comprising adding to the dispersion after the polymerization is completed an electrolyte in an amount sufficient to displace the cation of the emulsifier entirely selected from a basic hydroxide or a soluble ammonium, alkali metal, or alkaline earth salt, other than lithium hydroxide or a lithium salt.

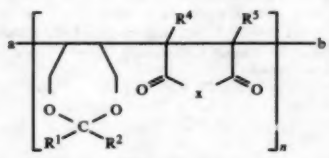
4,384,093

COPOLYMERS DERIVED FROM 1,3 DIOXEPINS AND MALEIC ANHYDRIDE OR MALEIMIDES AND METHODS

Billy M. Culbertson, Worthington, Ohio, and Ann E. Aulabaugh, Madison, Wis., assignors to Ashland Oil, Inc., Ashland, Ky.

Filed Apr. 15, 1981, Ser. No. 254,499
Int. Cl.³ C08F 26/08, 24/00
U.S. Cl. 526—266 **10 Claims**

1. A polymer having the following general formula:



wherein X represents O or N-R^3; and R^1, R^2, R^3, R^4 and R^5 are selected from the groups consisting of alkyl, substituted alkyl, aryl, substituted aryl, and hydrogen; and

n is an integer greater than or equal to about 10; and

a and b are terminal groups of the polymer.

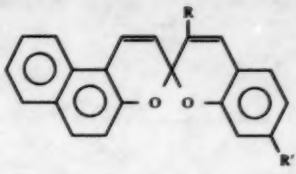
4,384,094

3-SUBSTITUTED-7-DIALKYLAMINO-SPIRO(2H-1-BENZOPYRAN-2,3'-(3H)-NAPHTHA(2,1-B)PYRANS)

John E. Herweh, Lancaster; Thomas B. Garrett, Lititz, and Alan B. Magnusson, Lancaster, all of Pa., assignors to Armstrong World Industries, Inc., Lancaster, Pa.

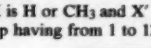
Filed Oct. 22, 1981, Ser. No. 313,731
Int. Cl.³ C08F 234/02; C07D 311/96
U.S. Cl. 526—268 **2 Claims**

1. A spiropyran compound having the formula



wherein R represents unsaturated alkyl and R′ represents dialkylamino.

2. A copolymer produced by the free radical polymerization of a spiropyran compound of claim 1 and an acrylate of the formula



wherein X is H or CH_3 and X′ is H or a straight or branched alkyl group having from 1 to 12 carbon atoms.

4,384,095

VINYLBENZYL ALCOHOL POLYMER BEADS AND THERMALLY CROSSLINKED DERIVATIVES THEREOF

Samuel F. Reed, Holland, Pa., and David L. Hundermark, Knoxville, Tenn., assignors to Rohm and Haas Company, Philadelphia, Pa.

Continuation of Ser. No. 927,225, Jul. 24, 1978, abandoned. This application Jan. 28, 1980, Ser. No. 115,861
Int. Cl.³ C08F 216/10
U.S. Cl. 526—293 **7 Claims**

1. A polymer composition comprising crosslinked beads of a linear addition polymer, said linear polymer containing repeating units of vinylbenzyl alcohol and at least one other alpha,-beta-monoethylenically unsaturated monomer different from vinylbenzyl alcohol, wherein the vinylbenzyl alcohol units comprise about 0.5% to about 20% by weight of the linear polymer and the crosslinks comprise alpha-hydroxy benzylic methylene links and/or benzyloxy links between aromatic rings of said vinylbenzyl alcohol units or between said aromatic rings and other active sites in said linear polymer.

4,384,096

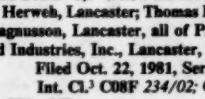
LIQUID EMULSION POLYMERS USEFUL AS PH RESPONSIVE THICKENERS FOR AQUEOUS SYSTEMS

Lawrence F. Sonnabend, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Continuation of Ser. No. 70,061, Aug. 27, 1979, abandoned, which is a continuation-in-part of Ser. No. 964,113, Nov. 27, 1978, abandoned. This application Dec. 23, 1980, Ser. No. 219,480
Int. Cl.³ C08F 20/30, 20/28, 20/06
U.S. Cl. 526—313 **30 Claims**

1. A liquid emulsion polymer useful as a pH responsive thickener for aqueous compositions comprising an aqueous emulsion copolymer of:

A. about 15–60 weight percent based on total monomers of at least one C_3–C_8 α,β-ethylenically unsaturated carboxylic acid monomer of the formula:



(I)

where

R is H and R′ is H, C_1–C_4 alkyl, or $—CH_2COOX$;

R is —COOX and R′ is H or $—CH_2COOX$; or,

R is CH_3 and R′ is H; and

X is H or C_1–C_4 alkyl;

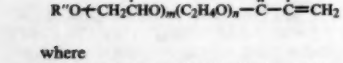
B. about 15–80 weight percent of at least one nonionic, copolymerizable C_2–C_{12} α,β-ethylenically unsaturated monomer of the formula:

$$CH_2{=}CYZ \qquad (II)$$

where
Y is H and Z is —COOR, $-C_6H_4R'$, CN, Cl,

or $-CH{=}CH_2$;
Y is CH_3 and Z is —COOR, $-C_6H_4R'$, CN or $-CH{=}CH_2$; or
Y and Z are Cl;
R is C_1–C_8 alkyl or C_2–C_8 hydroxyalkyl;
R′ is H, Cl, Br, or C_1–C_4 alkyl; and
R″ is C_1–C_8 alkyl; and

C. about 1–30 weight percent based on total monomers of at least one nonionic vinyl surfactant ester of the formula:



(III)

where
R is H or CH_3, each R′ is C_1–C_2 alkyl,
R″ is C_8–C_{20} alkyl or C_8–C_{16} alkylphenyl,
n is an average number from about 6–100 and m is an average number from about 0–50 provided that $n \geqq m$ and $\Sigma(n+m)$ is about 6–100;

said polymer being stable as an aqueous colloidal dispersion at a pH lower than about 5.0 but becoming an effective thickener for aqueous systems upon adjustment to a pH of about 5.5–10.5 or higher.

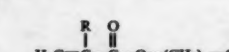
4,384,097

CONTACT LENSES OF METHYL METHACRYLATE COPOLYMERS

Frank Wingler; Bernd Leusner; Peter Schwabe, all of Leverkusen, and Otto-Christian Geyer, Wetzlar, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Oct. 9, 1980, Ser. No. 195,553
Claims priority, application Fed. Rep. of Germany, Oct. 13, 1979, 2941586
Int. Cl.³ C08F *220/10, 220/26;* G02C *7/04*
U.S. Cl. 526—328.5 **3 Claims**

1. Contact lenses or contact shells of light-refracting material having a glass transition temperature of 40° to 70° C. and consisting essentially of a chemically uniform copolymer (I) from 40 to 90% by weight of methyl methacrylate and (II) from 10 to 60% by weight of methyl acrylate and/or esters corresponding to the formula



in which
R represents H or CH_3,
R′ represents CH_3 or C_2H_5 and
n=1 or 2,
the sum of I and II amounting to 100% by weight.

4,384,098

FILAMENTARY POLYPROPYLENE AND METHOD OF MAKING

Gerald E. Hagler, and Charles S. Hatcher, both of Greenville, S.C., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jan. 13, 1981, Ser. No. 224,771
Int. Cl.³ D04H *1/04*
U.S. Cl. 526—348.1 **14 Claims**

1. A process for making filamentary materials having a high degree of lustre, comprising:
melt spinning a polypropylene resin, having a molecular weight distribution of less than about 7 and a melt flow between about 20 and about 60, at a spinning temperature below about 510° F. and at a takeup speed above about 1000 meters per minute.

4,384,099

CATIONIC AMINE MODIFIED ASPHALT COMPOSITIONS

Anthony V. Grossi, Newark; Leon A. Hagelee, Minerva Park; Louis T. Hahn, and Alfred Marzocchi, both of Newark, all of Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Dec. 11, 1982, Ser. No. 329,901
Int. Cl.³ C08F *289/00;* C08G *83/00;* C08H *5/00*
U.S. Cl. 527—500 **8 Claims**

1. As a composition of matter, the product produced by reacting asphalt with a vinyl aromatic monomer and an amine of an acyclic unsaturated hydrocarbon.

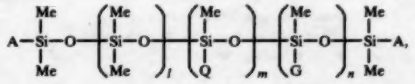
4,384,100

NOVEL DIORGANOPOLYSILOXANE COMPOUNDS

Minoru Takamizawa, Annaka; Shigeo Kimura, Miyagi; Masashi Somezawa, Miyagi; Kunio Kobayashi, Miyagi; Yoshio Inoue, and Hiroshi Yoshioka, both of Annaka, all of Japan, assignors to Shin-Etsu Chemical Co., Ltd. and Sony Corporation, both of Tokyo, Japan

Filed May 27, 1981, Ser. No. 267,542
Claims priority, application Japan, May 28, 1980, 55-71032
Int. Cl.³ C08G *77/00*
U.S. Cl. 528—41 **1 Claim**

1. A diorganopolysiloxane compound having the formula



in which Me is a methyl group, Q is a 2-perfluoroalkylethyl group expressed by the formula $F-(CF_2)_pCH_2-CH_2-$, p being an integer from 1 to 13 inclusive, G is an acyloxyalkyl group expressed by the formula $R^1-CO-O-R^2-$, R^1 and R^2 being a saturated or unsaturated monovalent hydrocarbon group having from 7 to 21 carbon atoms and a saturated divalent hydrocarbon group having from 1 to 5 carbon atoms, respectively, A is a group of Me, Q or G, and the suffixes l, m and n are each a positive integer up to and not exceeding 100.

4,384,101

SOLVENT-FREE POLYURETHANE RESIN MIXTURE

Zoltan Kovacs, Zurich, and Roland Schuler, Wettingen, both of Switzerland, assignors to BBC Brown, Boveri & Company, Limited, Baden, Switzerland

PCT No. PCT/CH81/00025, § 371 Date Oct. 7, 1981, § 102(e) Date Oct. 7, 1981, PCT Pub. No. WO81/02647, PCT Pub. Date Sep. 17, 1981

PCT Filed Mar. 2, 1981, Ser. No. 309,893

Claims priority, application European Pat. Off., Mar. 3, 1980, 80200188.3

Int. Cl.³ C08G *18/30, 18/18, 18/16*

U.S. Cl. 528—73 **10 Claims**

1. A solvent-free, curable thermosetting resin mixture useful for the insulation of electrical conductors and windings, which comprises:

(a) at least one reactive liquid polyepoxide compound,

(b) at least one reactive liquid polyisocyanate,

(c) from 0.01 percent to 5 percent by wt based on the total weight of the mixture of at least one latent hardener for said components (a) and (b),

(d) an effective cross-linking amount of triallyl cyanurate, said mixture containing from 2 to 5.5 equivalents of said polyisocyanate per equivalent of polyepoxide compound.

4,384,102

PROCESS FOR THE PREPARATION OF COMPOUNDS HAVING S-TRIAZINE UNITS AND EPOXIDE GROUPS

Werner Rasshofer, Cologne; Gerhard Grögler, Leverkusen, and Richard Kopp, Cologne, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

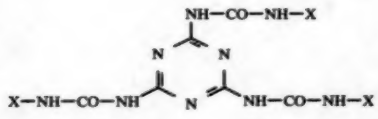
Filed Jan. 4, 1982, Ser. No. 336,659

Claims priority, application Fed. Rep. of Germany, Jan. 8, 1981, 3100355

Int. Cl.³ C08G *18/77*

U.S. Cl. 528—73 **7 Claims**

5. A filler component useful in the production of polyurethanes which is a compound having s-triazine units and epoxide groups formed by reacting (a) a triisocyanate of the formula:



wherein

X denotes a group such as is obtained by the removal of the more highly reactive of the isocyanate groups from an aromatic diisocyanate having isocyanate groups of differing reactivities in the isocyanate addition reaction

with an epoxide compound containing isocyanate reactive groups in a manner such that the equivalent ratio of isocyanate groups to isocyanate reactive groups is ≦1:1.

4,384,103

HIGH SOLIDS URETHANE COATINGS I

Mohinder S. Chattha, Livonia, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Dec. 28, 1981, Ser. No. 334,686

Int. Cl.³ C08G *18/32, 18/34*

U.S. Cl. 528—83 **33 Claims**

1. A thermosetting coating composition adapted for low temperature bake applications comprising:

(A) a polyhydroxy oligomer having a number average molecular weight of between about 250–2000 and comprising the reaction product of:

(i) an ester having pendant hydroxyl and carboxyl functionality and being made by reacting:

(a) a C_3–C_{10} aliphatic branched diol and

(b) an alkyl hexahydrophthalic anhydride, wherein (a) and (b) are combined in the reactant mixture in an amount sufficient to allow reaction in about a 1:1 molar ratio; and

(ii) a C_2–C_{10} monomer, having reactive functionality capable of esterifying said carboxyl functionality of said ester, said C_2–C_{10} monomer being selected from the group consisting of:

(a) a monomer wherein said reactive functionality reacts with said carboxyl functionality to form an hydroxyl in addition to an ester linkage,

(b) a monomer bearing hydroxyl functionality in addition to said reactive functionality and wherein said reactive functionality does not generate an hydroxyl in addition to an ester linkage, and

(c) a monomer bearing hydroxyl functionality in addition to said reactive functionality wherein said reactive functionality reacts with said carboxyl functionality to form a hydroxyl in addition to an ester linkage,

wherein said ester and said C_2–C_{10} monomer are combined in the reactant mixture in an amount sufficient to allow reaction in about a 1:1 molar ratio;

(B) a polyisocyanate crosslinking agent; and

(C) 0–50 weight percent based on the total weight of (A), (B) and (C) of a hydroxy functional additive having a number average molecular weight (M_n) of between about 150–6000, said polyisocyanate crosslinking agent having two or more reactive isocyanate groups per molecule and being included in the composition in an amount sufficient to provide between about 0.50 and about 1.6 reactive isocyanate groups per hydroxyl group present in said composition either on said polyhydroxy oligomer or as a hydroxyl group of said hydroxy functional additive.

4,384,104

FIBER LUBRICANTS FORMED BY POLYOXYALKYLATION OF EPOXY RESIN DERIVATIVES

Edward M. Dexheimer, Grosse Ile, Mich., assignor to BASF Wyandotte Corporation, Wyandotte, Mich.

Filed Mar. 15, 1982, Ser. No. 358,236

Int. Cl.³ C08G *59/00, 65/08*

U.S. Cl. 528—103 **9 Claims**

1. A polyol comprising a thermally oxidatively stable compound prepared by the reaction of an alkylene oxide having from 2 carbon atoms to 4 carbon atoms with a derivative of an epoxy resin, said derivative selected from the group consisting of (a) an epoxy resin hydrolyzed with water, (b) an epoxy resin alcoholyzed with a monohydric alcohol containing from 1 carbon atom to 18 carbon atoms and (c) an epoxy resin esterified with a carboxylic acid containing from 1 carbon atom to 20 carbon atoms, wherein said epoxy resin is a glycidyl ether of a dihydric phenol and said polyol has an approximate average molecular weight of from 1,000 to 10,000 and contains between 25 and 90 percent by weight oxyalkylene groups.

4,384,105

POLYESTER COMPOSITIONS, SHAPED ARTICLES OBTAINED FROM THEM AND PROCESSES FOR PREPARING THEM

Patrick J. Horner, Welwyn Garden City, England, assignor to Imperial Chemical Industries PLC, London, England

Continuation of Ser. No. 43,424, May 24, 1979, Pat. No. 4,284,756. This application Apr. 23, 1981, Ser. No. 257,232

Claims priority, application United Kingdom, Jun. 9, 1978, 26606/78

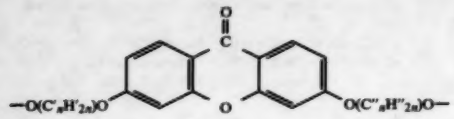
The portion of the term of this patent subsequent to Aug. 18, 1998, has been disclaimed.

Int. Cl.³ C08G *8/02, 63/42*

U.S. Cl. 528—128 **4 Claims**

1. A shaped article formed of a linear polyester which con-

tains in its molecule polymerised residues of bis(hydroxyalkoxy)xanth-9-ones of the formula



wherein

$n'=1$ to 10 and

$n''=1$ to 10,

the amount of said polymerised residues being 0.05 to 10 percent based on the total polymer.

4,384,106

COPOLYESTERS

Santos W. Go, and Dennis J. Burzynski, both of Toledo, Ohio, assignors to Owens-Illinois, Inc., Toledo, Ohio

Filed Mar. 9, 1982, Ser. No. 356,556

Int. Cl.³ C08G *63/66, 63/68*

U.S. Cl. 528—173 **4 Claims**

1. A solid thermoplastic copolyester consisting essentially of the reaction product of:

(A) reactant(s) selected from isophthalic acid, terephthalic acid, and their C_1 to C_4 alkyl esters, and any mixture thereof in any proportion,

(B) reactants, ethylene glycol plus 1,4 bis(2-hydroxyethoxy)-benzene and one or both of 1,3 bis(2-hydroxyethoxy)benzene, bis(4-β-hydroxyethoxyphenyl)sulfone and, optionally, other dihydroxylated hydrocarbons or oxyhydrocarbons, wherein

the B reactants are 110 to 300 mol percent of said A reactants,

all B reactants combined, exclusive of ethylene glycol, do not exceed 90 mol percent of said A reactants,

bis(4-β-hydroxyethoxyphenyl)sulfone is 0 to 80 mol percent of said A reactants,

said other dihydroxylated oxyhydrocarbons or hydrocarbons are 0–20 mol percent of said A reactants,

the mols of 1,3 bis(2-hydroxyethoxy)benzene plus twice the mols of bis(4-β-hydroxyethoxyphenyl)sulfone are at least 10 mol percent of said A reactants, and

1,4 bis(2-hydroxyethoxy)benzene is 7–70 mol percent of said A reactants.

4,384,107

POLYAMIDE COMPRISING SUBSTITUTED BIPHENYLENE OR SUBSTITUTED STILBENE RADICALS

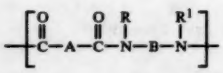
Howard G. Rogers, Weston, Mass.; Russell A. Gaudiana, Merrimack, N.H.; Jeannette S. Manello, Lawrenceville, N.J., and Ronald A. Sahatjian, Lexington, Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Mar. 2, 1981, Ser. No. 238,069

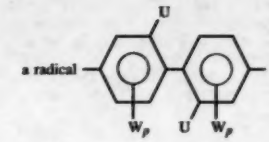
Int. Cl.³ C08G *69/26*

U.S. Cl. 528—183 **36 Claims**

1. A molecularly oriented and birefringent polymer in the form of a film or fiber and comprising recurring units of the formula

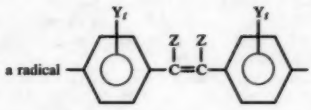


wherein each of A and B is a divalent radical; R and R^1 are each hydrogen, alkyl, aryl, alkaryl or aralkyl; and wherein at least one of said divalent radicals is a divalent radical selected from the group consisting of:



(1)

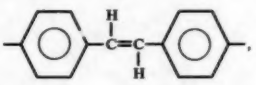
where each U is a substituent other than hydrogen, each W is hydrogen or a substituent other than hydrogen, and each p is an integer from 1 to 3, said U and W_p substitution being sufficient to provide the aromatic nuclei of said radical with a non-coplanar molecular configuration with respect to each other, and



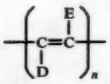
(2)

where each of Y and Z is hydrogen or a substituent other than hydrogen and each t is an integer from 1 to 4, with the proviso that when each said Z is hydrogen, at least one said Y substituent is a substituent other than hydrogen positioned on the corresponding nucleus ortho with respect to the

moiety of said radical, said Z and Yt substitution being sufficient to provide the aromatic nuclei of said radical with a non-coplanar molecular configuration with respect to each other; and wherein, when only one of said A or B divalent radicals is a divalent radical selected from the group consisting of radicals (1) and (2) as hereinbefore defined, the other of said A or B divalent radicals is a divalent radical selected from the group consisting of a stilbene radical having the formula



transvinylene, ethynylene or a polyunsaturated divalent radical of the formula



where n is an integer of at least two and each of D and E is hydrogen or alkyl.

4,384,108

TWO-PHASE INTERFACIAL POLYCARBONATE PROCESS

John R. Campbell, Saratoga, and Jerry C. Lynch, Schenectady, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Jun. 22, 1981, Ser. No. 276,329

Int. Cl.³ C08G *63/62*

U.S. Cl. 528—196 **14 Claims**

1. An improved interfacial polycondensation polycarbonate process wherein at least one non-sterically hindered dihydric

phenol is reacted with a carbonyl halide in the presence of a polycondensation catalyst, the improvement comprising carrying out the process in accordance with the following process sequence

(1) forming an equilibrated substantially uniform agitated two-phase admixture comprising:

(i) an organic phase containing a non-sterically-hindered aromatic dihydroxy compound, an inert solvent, a polycondensation catalyst, and a chain-stopper,

(ii) an aqueous phase containing a strong base and having a pH within the range of from 11 to 13,

(2) adding to said admixture and reacting a carbonyl halide with the non-sterically-hindered aromatic dihydroxy compound at:

(a) a pH range of 11 to 13,

(b) an initial reaction temperature range of from 15° to 40° C.,

(c) a carbonylhalide rate of addition of 0.03 to 0.3 moles per minute per mole of aromatic dihydroxy compound, and

(d) a chain-stopper content of 0.02 to 0.05 moles per mole of aromatic dihydroxy compound, to form a non-sterically-hindered aromatic polycarbonate having an $\bar{M}w$ within the range of from 25,000 to 65,000 as determined by gel permeation chromotography and a monocarbonate by-product content of less than about 400 parts per million, and

(3) recovering a non-sterically-hindered aromatic polycarbonate.

4,384,109

UNSATURATED POLYESTERS PREPARED FROM A DICARBOXYLIC ACID AND DIBROMONEOPENTYL GLYCOL

Eric R. Larsen, and Ernest L. Ecker, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 99,259, Dec. 3, 1979, abandoned. This application Sep. 22, 1980, Ser. No. 189,236

Int. Cl.³ C08G *63/30, 63/38*

U.S. Cl. 528—274 **11 Claims**

1. In the process for preparing unsaturated polyesters by reacting at an elevated temperature not greater than 200° C., an unsaturated dicarboxylic acid with a polyol, the substantial majority of which is dibromoneopentyl glycol, the improvement wherein the catalyst employed is an aryl sulfonic acid comprising about 0.05 to 3 percent by weight of the reactants and there is also present a sufficient amount of an acid scavenger to neutralize said sulfonic acid.

4,384,110

POLYAMINES CONTAINING UREA GROUPS PREPARED FROM LACTAM OR AMINOCARBOXYLIC ACID

Wilfried Löbach, Bonn; Günter Kolb; Wolfgang Lehmann, both of Leverkusen; Günther Cramm, Cologne; Friedhelm Müller, Odenthal, and Janos Muszik, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Division of Ser. No. 156,832, Jun. 5, 1980, Pat. No. 4,348,514. This application Mar. 15, 1982, Ser. No. 358,406

Claims priority, application Fed. Rep. of Germany, Jun. 25, 1979, 2925567

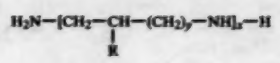
Int. Cl.³ C08G *69/08, 69/14, 71/02*

U.S. Cl. 528—323 **5 Claims**

1. A non-crosslinking, water-soluble polyamine obtained by reacting

(A) a basic polyurea which has been prepared by condensation of (a) a urea with (b) a polyamine containing at least three amino groups, of which at least one is a tertiary amino group, and with (c) an ω-aminocarboxylic acid containing at least three carbon atoms or a lactam thereof,

(B) a polyalkylenepolyamine of the formula



in which

R denotes H or CH_3,

the indices y are in each case identical or different and denote the number 0 or 1 and

x denotes a number from 4 to 2,500, or a mixture of such a polyaklylenepolyamine with an amine of the same formula, but in which

x denotes a number from 1 to 3, and

(C) a compound which is polyfunctional towards amino groups.

4,384,111

HEXAMETHYLENEDIAMINE/ADIPIC ACID/DIMER ACID COPOLYAMIDE

Jean Goletto, Ecully, and Jean Coquard, Grezieu la Varenne, both of France, assignors to Rhone-Poulenc Industries, Paris, France

Filed Jun. 24, 1980, Ser. No. 162,491

Claims priority, application France, Jun. 26, 1979, 79 17264

Int. Cl.³ C08G *69/26*

U.S. Cl. 528—339.3 **9 Claims**

1. A flexible, homogeneous and transparent copolyamide comprising the polycondensation product of adipic acid, fatty acid dimer and hexamethylene diamine, wherein

the molar fraction of adipic acid relative to the total amount of acid and the copolyamide melting point are such that the point obtained by plotting said molar fraction of adipic acid along the abscissa versus the copolyamide melting point along the ordinate falls within the area A B C D outlined on the accompanying Figure of Drawing, and wherein

the molar ratio of adipic acid to the total amount of acid in the copolyamide ranges from about 0.5 to 0.99.

4,384,112

POLYAMIDES AND COPOLYAMIDES CONTAINING 2,2',4,4',6,6'-HEXAMETHYL-3,3'-DIAMINOBIPHENYL MOIETIES

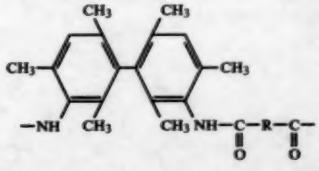
Edward E. Paschke, Wheaton, and J. A. Donohue, Elmhurst, both of Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Filed Sep. 28, 1981, Ser. No. 305,932

Int. Cl.³ C08G *69/26*

U.S. Cl. 528—347 **64 Claims**

1. An injection moldable polyamide comprising the following recurring structure:



wherein R is a divalent aliphatic or aromatic hydrocarbon radical or a mixture of hydrocarbon radicals and the polyamide has a glass transition temperature of excess of 171° C.

4,384,113

STABILIZATION OF ALKALI POLYSACCHARIDES

William H. Daly, Baton Rouge, La., assignor to The Dow Chemical Company, Midland, Mich.

Filed Mar. 23, 1982, Ser. No. 361,013
Int. Cl.³ C08B 1/06, 1/08
U.S. Cl. 536—101 7 Claims

1. A method for making an improved basic polysaccharide which comprises the steps of (1) contacting a polysaccharide with a tetravalent onium salt under conditions such that the salt is dispersed in or distributed on the polysaccharide and (2) mixing the resulting onium/polysaccharide with a strong base under conditions sufficient to provide a basic polysaccharide having a molecular weight essentially the same as the initial polysaccharide.

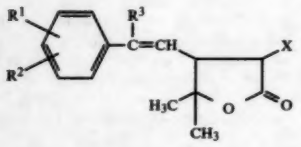
4,384,114

STYRYL SUBSTITUTED Γ-LACTONE DERIVATIVES

Manfred Jautelat, Burscheid; Dieter Arlt, Cologne; Reinhard Lantzsch, Leverkusen; Rainer Fuchs, Wuppertal; Hans-Jochem Riebel, Wuppertal; Rolf Schröder, Wuppertal, and Horst Harnisch, Much, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Division of Ser. No. 137,685, Apr. 7, 1980, Pat. No. 4,327,025. This application Nov. 12, 1981, Ser. No. 320,622
Claims priority, application Fed. Rep. of Germany, Apr. 23, 1979, 2916321
Int. Cl.³ C07D 307/32
U.S. Cl. 542—441 2 Claims

1. A compound of the formula



in which

X is hydrogen or CO_2R^4,

R^1 is C_1–C_4 alkoxy or C_1–C_4 alkylthio, either of which may be optionally substituted by halogen,

R^2 is hydrogen or methoxy, or

R^1 and R^2 together are optionally halogen-substituted C_1–C_4 alkylenedioxy,

R^3 is hydrogen or chlorine, and

R^4 is hydrogen or C_{1-4}-alkyl.

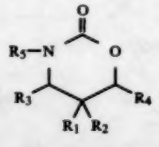
4,384,115

PROCESS FOR PREPARING TETRAHYDRO-1,3-OXAZIN-2-ONES

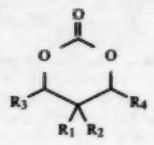
James M. Renga, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Dec. 14, 1981, Ser. No. 330,743
Int. Cl.³ C07D 265/10
U.S. Cl. 544—97 8 Claims

1. A process for preparing tetrahydro-1,3-oxazin-2-ones corresponding to the formula:



wherein R_1–R_4 independently are hydrogen, alkyl or aryl of up to about 10 carbons and R_5 is alkyl or aryl of up to about 10 carbons, comprising contacting a 1,3-dioxan-2-one corresponding to the formula:



wherein R_1–R_4 are as previously defined, with an acyclic carbamate corresponding to the formula $R_5HNC(O)OR_6$, wherein R_5 is as previously defined and R_6 is lower alkyl or haloalkyl, in the presence of a catalytic amount of an alkali metal salt at a temperature from about 100° C. to about 250° C. for a time sufficient to produce the desired tetrahydro-1,3-oxazin-2-one.

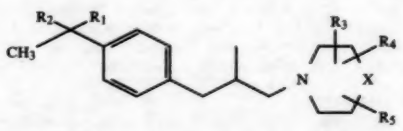
4,384,116

PROCESS FOR THE PREPARATION OF MORPHOLINE AND PIPERIDINE DERIVATIVES

Albert Pfiffner, Bülach, Switzerland, assignor to Hoffmann-La Roche Inc., Nutley, N.J.

Continuation of Ser. No. 61,952, Jul. 30, 1979, abandoned. This application Feb. 2, 1981, Ser. No. 230,196
Claims priority, application Switzerland, Aug. 8, 1978, 8407/78
Int. Cl.³ C07D 265/30, 295/02, 295/06
U.S. Cl. 544—178 6 Claims

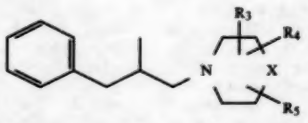
1. A process for the preparation of a compound of the formula,



I

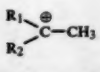
wherein R_1 and R_2 individually are lower alkyl of from 1 to 4 carbons or halo-(lower alkyl) of from 1 to 4 carbons or R_1 and R_2 together with the carbon to which they are attached form a 3- to 7-membered cycloalkyl ring or lower alkyl substituted cycloalkyl of from 4 to 9 carbons, R_3, R_4 and R_5 individually are hydrogen or lower alkyl of from 1 to 4 carbons and X is methylene or oxygen, and salts of those compounds which are basic,

which comprises reacting, in the presence of a Friedel-Crafts catalyst, a compound of the formula,



II

wherein R_3, R_4, R_5 and X have the significance given above, with a compound selected from the group consisting of a secondary alcohol and a tertiary alcohol which forms a carbonium ion of the formula,



III

wherein R_1 and R_2 have the significance given above, in a chlorinated hydrocarbon solvent at a temperature from

about 0° C. to about 50° C. to form, as a reaction product, a morpholine or piperidine derivative of the formula I.

4,384,117

SILVER METACHLORIDINE

Michael S. Wysor, Washington, D.C., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Mar. 28, 1980, Ser. No. 135,059
Int. Cl.³ C07D 239/69
U.S. Cl. 544—225 1 Claim

1. The silver salt of metachloridine.

4,384,118

4-(3-IODOPROPARGYLOXY) PYRIMIDINE DERIVATIVES

Dusan Hesoun; Bohumir Vondracek, both of Usti n/Labem, and Jana Turinova, Prague, all of Czechoslovakia, assignors to SPOFA, spojene podniky pro zdravotnickou vyrobu, Prague, Czechoslovakia

Filed Jun. 15, 1981, Ser. No. 273,444
Claims priority, application Czechoslovakia, Jun. 13, 1980, 4192-80
Int. Cl.³ C07D 239/47, 239/56
U.S. Cl. 544—309 4 Claims

1. 2-Amino-4-(3 iodopropargyloxy)-5-methoxy pyrimidine.

2. 2-Butylthio-4-(3-iodopropargyloxy)-5-methoxy pyrimidine.

3. 2-Allylthio-4-(3-iodopropargyloxy) pyrimidine.

4. 2-Methylthio-4-(3-iodopropargyloxy)-5-methoxy pyrimidine.

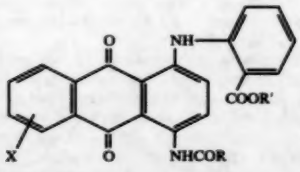
4,384,119

CATALYTICALLY REDUCTIVE RING CLOSURE FOR 1-ACYLAMINO-3,4-PHTHALOYLACRIDONES

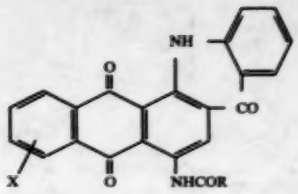
Maurice Grelat, Bettingen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Jan. 19, 1982, Ser. No. 340,671
Claims priority, application Switzerland, Jan. 30, 1981, 617/81
Int. Cl.³ C09B 15/00
U.S. Cl. 546—59 11 Claims

1. A process for producing 1-acylamino-3,4-phthaloylacridones by reaction of 1-acylamino-4-bromoanthraquinone with anthranilic acid to 1-acylamino-4-anilidoanthraquinone-2'-carboxylic acid, esterification of the acid and subsequent reductive ring-closure reaction, which process comprises effecting esterification by means of an alkylphosphoric acid dialkyl ester, the alkyl groups each having 1 to 4 C atoms, and performing the reductive ring-closure reaction of 1-acylamino-4-anilido-2'-carboxylic acid ester of the formula



to 1-acylamino-3,4-phthaloylacridone of the formula



wherein R is phenyl, alkylphenyl or C_1–C_8-alkyl, R' is C_1–C_4-alkyl, and X is hydrogen, halogen or C_1–C_4-alkyl, by means of a hydrogenation catalyst and hydrogen in a basic reaction medium, said hydrogen being provided in amount just sufficient to accomplish ring closure.

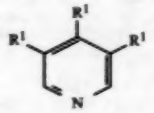
4,384,120

PREPARATION OF PYRIDINES

Franz Merger, Frankenthal, and Gerd Fouquet, Neustadt, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Jan. 18, 1982, Ser. No. 339,998
Claims priority, application Fed. Rep. of Germany, Jan. 30, 1981, 3103108
Int. Cl.³ C07D 213/14
U.S. Cl. 546—251 10 Claims

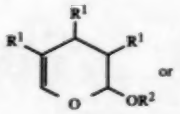
1. A process for the preparation of a pyridine of the formula



I

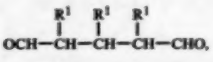
where the individual radicals R^1 are identical or different and each is hydrogen or an alkyl of 1 to 4 carbon atoms, which process comprises reacting

(a) a 2-alkoxy-2,3-dihydro-4H-pyran of the formula



II

(b) a glutaraldehyde of the formula



III

where R^1 has the above meanings and R^2 is an alkyl of 1 to 4 carbon atoms, with ammonium nitrate in the presence of an aliphatic carboxylic acid and a catalytic amount of nitric acid.

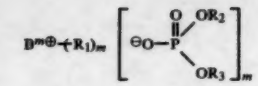
4,384,121

CATIONIC FLUORESCENT WHITENING AGENTS

Hans R. Meyer, Binningen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Oct. 27, 1980, Ser. No. 200,738
Claims priority, application Switzerland, Nov. 1, 1979, 9808/79
Int. Cl.³ C07D 405/04, 413/02
U.S. Cl. 548—217 6 Claims

1. A cationic fluorescent whitening agent of the formula



wherein

B is a fluorescent whitening agent selected from the group consisting of 2-furanylbenzimidazoles, 2-azolylbenzimidazoles, 2-stilbenylbenzimidazoles and 2,5-(benzimidazolyl)furanes,

m is the number of basic amino groups, and each of R_1, R_2 and R_3 is alkyl of 1 to 4 carbon atoms which is unsubstituted or substituted by a non-chromophoric group, or is alkenyl of 2 to 4 carbon atoms which is unsubstituted or substituted by a non-chromophoric group.

4,384,122

PROCESS FOR THE PRODUCTION OF IMIDAZOLIDINE TRIONES

Wilfried Zecher, and Rudolf Merten, both of Leverkusen, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jun. 29, 1981, Ser. No. 278,641

Claims priority, application Fed. Rep. of Germany, Jul. 21, 1980, 3027618

Int. Cl.³ C07D *233/96*

U.S. Cl. 548—307 **5 Claims**

1. A process for producing a compound containing at least one imidazolidine-trione structure in the molecule which comprises reacting at least one organic iso(thio)cyanate or at least one masked iso(thio)cyanate whose masking groups are removable under the reaction conditions specified below, with an oxalic acid mono ester at a temperature of from 0° to 450° C.

4,384,123

PHOSPHINYLALKANOYL SUBSTITUTED PROLINES

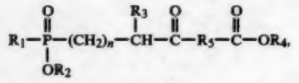
Edward W. Petrillo, Jr., Pennington, N.J., assignor to E. R. Squibb & Sons, Inc., Princeton, N.J.

Division of Ser. No. 212,911, Dec. 4, 1980, Pat. No. 4,337,201. This application Nov. 30, 1981, Ser. No. 326,082

Int. Cl.³ C07D *207/12*

U.S. Cl. 548—409 **8 Claims**

1. A compound having the formula



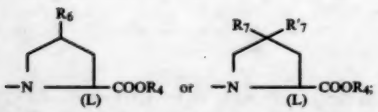
or a non-toxic, physiologically acceptable salt thereof, wherein

R_1 is alkyl, aryl, arylalkyl, cycloalkyl, or cylcoalkylalkyl;

R_2 and R_4 each is independently hydrogen, alkyl or arylalkyl;

R_3 is hydrogen or alkyl;

$—R_5—COOR_4$ is



R_6 is cycloalkyl or aryl;

R_7 and R'_7 together are $—S—(CH_2)_2—S—$; and

n is 0 or 1;

and wherein the term "aryl" refers to phenyl or phenyl substituted with halogen, alkyl, alkoxy, alkylthio, hydroxy, alkanoyl, nitro, amino, dialkylamino, or trifluoromethyl groups; the term "alkyl" refers to groups having 1 to 10 carbon atoms; the term "alkoxy" refers to groups having 1 to 8 carbon atoms; the term "cycloalkyl" refers to groups having 3 to 7 carbon atoms; and the term "alkanoyl" refers to groups having 2 to 9 carbon atoms.

4,384,124

CYCLOPROPANYL-BEARING AMIDES OF TRYPTOPHANE

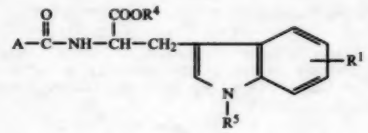
Faizulla G. Kathawala, West Orange, N.J., and John G. Heider, West Nyack, N.Y., assignors to Sandoz, Inc., E. Hanover, N.J.

Division of Ser. No. 9,473, Feb. 5, 1979, Pat. No. 4,248,893, which is a continuation-in-part of Ser. No. 872,836, Jan. 27, 1978, abandoned. This application Jul. 10, 1980, Ser. No. 168,194

Int. Cl.³ C07D *209/20*; A61K *31/41*

U.S. Cl. 548—495 **11 Claims**

1. A compound of the formula:

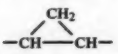


wherein

A is an unsaturated fatty acid hydrocarbon chain of 7 to 23 carbon atoms in which each unsaturated ethylene moiety of the formula:

$—CH=CH—$

is replaced by a cyclopropanyl group of the formula



said A having 1 to 4 such cyclopropanyl groups;

R^1 is hydrogen atom, halo having an atomic weight of from about 19 to 80, alkoxy having from 1 to 3 carbon atoms; or alkyl having from 1 to 3 carbon atoms;

R^4 is alkyl having from 1 to 8 carbon atoms, or unsubstituted benzyl; and

R^5 is a hydrogen atom, alkyl having from 1 to 8 carbon atoms or unsubstituted benzyl.

4,384,125

PROCESS FOR THE PURIFICATION OF 2-PYRROLIDONE

Reijer Goettsch, Beek, and Arnold G. M. Jetten, Ulestraten, both of Netherlands, assignors to Stamicarbon, B.V., Geleen, Netherlands

Filed Jun. 9, 1981, Ser. No. 271,933

Claims priority, application Netherlands, Jun. 10, 1980, 8003365

Int. Cl.³ C07D *207/267*

U.S. Cl. 548—555 **6 Claims**

1. In a fractional-distillation process for purifying impure 2-pyrrolidone obtained from succinonitrile comprising the combination of steps of:

(a) first heating impure pyrrolidone in the liquid state for about 0.5 hour to about 3 hours at about 80° C. to about 150° C. in the presence of a substantially water-free strong inorganic alkali or alkaline earth metal base, wherein about 0.5 gram to about 1.5 grams of said strong base is used per 100 grams of impure pyrrolidone;

(b) thereafter fractionally distilling the mixture obtained in step (a) to obtain a polymerization-grade purified pyrrol-

idone distillate, while leaving a metal pyrrolidonate-containing residue;

(c) mixing said metal pyrrolidonate-containing residue with water and an inorganic acid to liberate free pyrrolidone wherein said inorganic acid is selected from the group consisting of sulphuric acid, phosphoric acid, nitric acid or carbonic acid; and

(d) extracting high purity pyrrolidone from the mixture obtained in step (c) with a water-immiscible organic solvent.

4,384,126

SYNTHESIS OF DEOXYZOAPATANOL DERIVATIVES

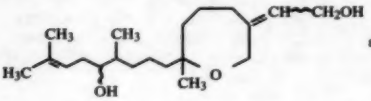
Vinayak V. Kane, Tucson, Ariz., assignor to Ortho Pharmaceutical Corporation, Raritan, N.J.

Filed Feb. 12, 1982, Ser. No. 348,469

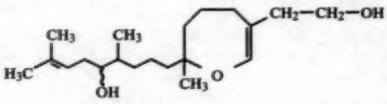
Int. Cl.³ C07D 313/04

U.S. Cl. 549—346 **8 Claims**

1. A compound selected from



and



4,384,127

PROCESS FOR SYNTHESIS OF OPTICALLY PURE PROSTAGLANDIN E_2 AND ANALOGS THEREOF

Phillip L. Fuchs, West Lafayette, Ind., assignor to Purdue Research Foundation, West Lafayette, Ind.

Filed Apr. 8, 1981, Ser. No. 251,844

Int. Cl.³ C07D 303/34

U.S. Cl. 549—546 **2 Claims**

1. (1S,2R,3R,4R)-Cis-3,4-epoxy-trans-2-(phenylsulfonyl)-cyclopentan-1-ol.

2. (1R,2S,3R,4R)-Trans-3,4-epoxy-trans-2-(phenylsulfonyl)-cyclopentan-1-ol.

4,384,128

PERFLUOROGLYCIDYL ETHERS

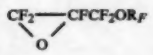
Carl G. Krespan, and Alicia P. King, both of Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 250,906, Apr. 3, 1981. This application Jan. 25, 1982, Ser. No. 342,717

Int. Cl.³ C07D 303/48

U.S. Cl. 549—550 **4 Claims**

1. Perfluoroglycidyl ethers of the formula



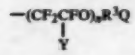
wherein R_F is:

(i)

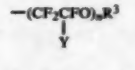
wherein R^1 is a carbon-carbon bond or a linear or branched perfluoroalkylene group of 1 to 12 carbon atoms; Q is $-SO_2F$, $-COF$, $-F$, $-Cl$, $-Br$, $-I$, $-CN$, $-CO_2H$, $-OC_6F_5$, or $-CO_2R^4$ where R^4 is $-CH_3$ or $-C_2H_5$; Y and Y' are $-F$ or $-CF_3$, provided that only one of Y and Y' can be $-CF_3$; or

(ii) $-CF(R^2)_2$ wherein R^2 is $-F$, $-CF_2Cl$, $-CF_2CN$, $-CF_2COF$, $-CF_2CO_2H$, $-CF_2OCF(CF_3)_2$ or $-CF_2CO_2R^4$ where R^4 is defined as above; or

(iii)



wherein R^3 is a linear or branched perfluoroalkylene group of carbon content such that the moiety



does not exceed 15 carbon atoms; Y independently is $-F$ or $-CF_3$; n is 1 to 4; and Q is as defined above; or

(iv) $-C_6F_5$.

4,384,129

PROPENYL-SUBSTITUTED PHENOLGLYCIDYL ETHERS, PROCESSES FOR PRODUCING THEM, AND THEIR USE

Sheik A. Zahir, Oberwil, and Sameer H. Eldin, Birsfelden, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

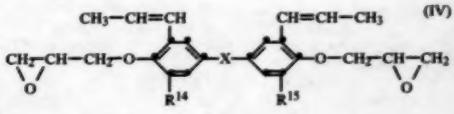
Continuation of Ser. No. 104,507, Dec. 17, 1979, abandoned. This application Apr. 27, 1981, Ser. No. 258,196

Claims priority, application Switzerland, Dec. 29, 1978, 13280/78

Int. Cl.³ C07D 303/27

U.S. Cl. 549—560 **2 Claims**

1. A phenolglycidyl ether of the formula IV



(IV)

wherein R^{14} and R^{15} are each a hydrogen atom and X is isopropylene, methylene, sulfonyl, —O— and —S—.

4,384,130

QUATERNARY AMMONIUM-FUNCTIONAL SILICON COMPOUNDS

Eugene R. Martin, Adrian, Mich., assignor to SWS Silicones Corporation, Adrian, Mich.

Filed May 21, 1982, Ser. No. 380,493

Int. Cl.³ C07F 7/10

U.S. Cl. 556—418 **11 Claims**

1. A process for preparing quaternary ammonium-functional silicon compounds which comprises reacting a carboxylic acid-functional quaternary ammonium compound with a carbinol-functional silicon compound.

4,384,131
PROCESS FOR THE PREPARATION OF OXIMATOHYDRIDOSILANES AND AMINOXYHYDRIDOSILANES

Bernard Kanner, West Nyack, and Steven P. Hopper, Mahopac, both of N.Y., assignors to Union Carbide Corporation, Danbury, Conn.

Filed Jul. 13, 1982, Ser. No. 397,814
Int. Cl.³ C07F 7/10, 7/18
U.S. Cl. 556—422 **13 Claims**

1. A process for the preparation of oximatohydridosilanes and aminoxyhydridosilanes which comprises reacting a silane of the general formula

$$HSi(NRR^1)_x(R^2)_{3-x}$$

wherein R, R^1 and R^2 are independently an aliphatic or aromatic, substituted or unsubstituted, saturated or unsaturated hydrocarbon radical having from one to eight carbon atoms inclusive and where R and R^2 may also be hydrogen and where R^2 may also be alkoxy where x has a value of from one to three with oximes or hydroxylamine of the general formula

$$R^3R^4C{=}NOH \quad (1)$$

$$R^3C{=}NOH \quad (2)$$

$$R^3R^4NOH \quad (3)$$

$$R^3NOH \quad (4)$$

where R^3 and R^4 are independently an aliphatic or aromatic, saturated or unsaturated, substituted or unsubstituted hydrocarbon radical having from one to twelve carbon atoms inclusive in the presence of a catalyst at a temperature between −50° C. to 150° C. where approximately one equivalent of alcohol is present per mole of the silicon-nitrogen bond and where the catalyst concentration is equal to about 0.01 to 10 mole percent of the silicon-nitrogen bonds.

4,384,132
BIS-(SILYLETHYL)-OLIGOSULPHIDES AND PROCESS FOR THEIR PRODUCTION

Rudolf Schwarz, Alzenau-Wasserlos; Peter Kleinschmit, Hanau; Christa Liedtke, Bruchköbel, and Siegfried Wolff, Bornheim-Mertens, all of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Division of Ser. No. 106,862, Dec. 26, 1979. This application Jul. 13, 1981, Ser. No. 282,949
Claims priority, application Fed. Rep. of Germany, Dec. 27, 1978, 2856229
Int. Cl.³ C07F 7/08, 7/18
U.S. Cl. 556—427 **15 Claims**

1. A bis-(silylethyl)-oligosulphide corresponding to the following average formula:

$$\{R_{4-(m+n)}R_n^1Si[CH_2CH_2]_m\}_2S_{mx} \quad I$$

in which
R represents chlorine, bromine, iodine, C_1–C_3-alkoxy, 2-methoxy ethoxy, 2-ethoxy ethoxy or hydroxy,
R^1 represents C_1–C_3-alkyl, phenyl or C_5–C_7-cycloalkyl,
n=0, 1 or 2,
m=1 or 2, m+n=1, 2 or 3, and
x=2.0 to 8.0,
by reacting a vinyl silane corresponding to the following formula

$$(CH_2{=}CH)_m{-}SiR_n^1R_{4-(m+n)} \quad II$$

in which R, R^1, n and m are as defined above, with sulphur and, optionally, hydrogen sulphide in molar ratios of vinyl silane to sulphur of from 1:2.5 to 1:10 and vinyl silane to hydrogen sulphide of from 1:0 to 1:5 at a temperature in the range from about 100° to 210° C., under a pressure of from 1 to 25 bars (total pressure at the reaction temperature) and in the presence of a sulphidation catalyst or a bis-(silylethyl)-oligosulphide prepared by at least partially hydrolyzing the R group of the oligosulphide of formula I.

4,384,133
PROCESS FOR THE PREPARATION OF OXALIC ACID DIESTERS

Haruhiko Miyazaki; Yasushi Shiomi, both of Ube; Satoru Fujitus, Yamaguchi; Katsuro Masunaga, and Hiroshi Yanagisawa, both of Ube, all of Japan, assignors to UBE Industries, Ltd., Yamaguchi, Japan

Filed Jan. 18, 1982, Ser. No. 340,034
Claims priority, application Japan, Jan. 26, 1981, 56-9035
Int. Cl.³ C07C 67/36
U.S. Cl. 560—204 **7 Claims**

1. In a process for preparing a diester of oxalic acid by the vapor phase catalytic reaction of carbon monoxide with an ester of nitrous acid in the presence of a catalyst composed of a solid carrier and a catalyst component supported on the carrier, the improvement wherein said catalyst component is composed of
(a) a platinum-group metal or a salt thereof, and
(b) at least one metal selected from the group consisting of Mo and Ni, or a salt thereof
wherein the atomic ratio of the component (a) to the component (b) as metal is from 500:1 to 1:10 and wherein the amount of the component (a) supported is about 0.01 to about 10% by weight calculated as the platinum-group metal based on the weight of the carrier.

4,384,134
PROCESS FOR PREPARING ORGANIC ACIDS

Johann G. Schulz, Pittsburgh, and Daniel Margosian, Verona, both of Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed Aug. 6, 1981, Ser. No. 290,662
Int. Cl.³ C07C 51/275
U.S. Cl. 562—410 **17 Claims**

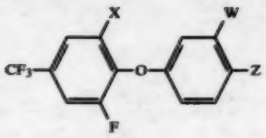
1. A process for preparing a coal derivative comprising a mixture of monocyclic, polycyclic, multifunctional carboxylic acids which comprises contacting an aqueous slurry containing coal with aqueous nitric acid, wherein the weight ratios of said coal, nitric acid and water are in the range of about 1:10:1 to about 1:0.1:10 and said contact is effected in the temperature range of about 15° to about 200° C. for about 0.5 to about 15 hours, and then drying the resulting product at a pressure of about atmospherhic to about one millimeter of mercury and a temperature of about 25° to about 150° C. to remove water therefrom.

4,384,135
PREPARATION OF FLUORINE-CONTAINING DIPHENYL ETHERS

David Cartwright, Reading; Roger Salmon, Bracknell, and Alfred G. Williams, Binfield, all of England, assignors to Imperial Chemical Industries Limited, London, England

Filed Jan. 19, 1981, Ser. No. 226,023
Claims priority, application United Kingdom, Feb. 5, 1980, 8003886
Int. Cl.³ C07C 65/21, 25/13, 121/75, 143/74
U.S. Cl. 562—435 **7 Claims**

1. A process of preparing compounds of the formula (II)

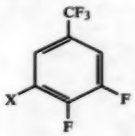


(II)

wherein X is fluorine, chlorine or bromine, Z is hydrogen, fluorine, chlorine, bromine, iodine, nitro, or cyano, and W is a methyl group, a cyano group, an acetyl group, or a group

wherein R is OH; OM wherein M is a cation; OR^1 wherein R^1 is an optionally substituted aliphatic radical; $—NR^2R^3$ wherein R^2 and R^3 are each hydrogen or an optionally substituted aliphatic radical; or $—NHSO_2R^4$ wherein R^4 is an alkyl radical of 1 to 6 carbon atoms, which comprises reacting a 3-X-substituted-4,5-difluorobenzotrifluoride with a salt of a 3,4-W,Z-substituted phenol in a solvent or diluent for the reactants, and in the case when W is $—CO_2H$ or $—CONHSO_2R^4$ acidifying the product of the reaction, and recovering the compound of formula (II).

3. A benzotrifluoride compound of the formula



wherein X is fluorine, chlorine or bromine.

4,384,136

PROCESS FOR RECOVERING AMINO ACIDS FROM PROTEIN HYDROLYSATES

Walter Steinmetzer, Süpplingen, Fed. Rep. of Germany, assignor to Societe d'Assistance Technique pour Produits Nestle S.A., Lausanne, Switzerland

Continuation of Ser. No. 119,111, Feb. 6, 1980, abandoned. This application Dec. 4, 1981, Ser. No. 327,593

Claims priority, application Fed. Rep. of Germany, Feb. 16, 1979, 2906034

Int. Cl.³ C07C *99/12*

U.S. Cl. 562—444 **1 Claim**

1. A process for recovering amino acids from acid protein hydrolysates comprising the steps of:

(a) neutralizing the protein hydrolysates to immediately crystallize a first fraction enriched with leucine which is thereafter separated by filtration;

(b) continuing crystallization of the neutralized protein hydrolysates for at least 3 days to obtain a second fraction enriched with cystine and tyrosine which is thereafter separated by filtration;

(c) dissolving the leucine-rich fraction in aqueous acid to form a solution;

(d) adjusting the isoleucine content of the solution to between 1.0 and 1.5% by total weight by the addition or removal of water;

(e) oxidizing the methionine contained in the solution by the addition of oxidizing agents;

(f) adjusting the pH of the solution to a value in the range of from 1.0 to 2.0 depending upon the tyrosine content in the solution to precipitate crude leucine which is separated by filtration; and

(g) purifying the separated leucine by repeatedly dissolving leucine in aqueous acid and precipitating the leucine at a pH range of from 1.0 to 2.0 until the desired degree of purity is obtained.

4,384,137

PROCESS FOR PREPARATION OF HYDROXYARYLGLYOXYLIC ACIDS AND THEIR ALKALINE SALTS, AND APPLICATION THEREOF TO PREPARATION OF SODIUM PARAHYDROXYPHENYLGLYOXYLATE

Alain Schouteeten, Ezanville; Yani Christidis, and Jean-Claude Vallejos, both of Paris, all of France, assignors to Societe Francaise Hoechst, France

PCT No. PCT/FR81/00108, § 371 Date Apr. 20, 1982, § 102(e) Date Apr. 20, 1982, PCT Pub. No. WO82/00821, PCT Pub. Date Mar. 18, 1982

PCT Filed Aug. 27, 1981, Ser. No. 375,124

Claims priority, application France, Sep. 4, 1980, 80 19103

Int. Cl.³ C07C *59/90, 65/40*

U.S. Cl. 562—463 **8 Claims**

1. In a process for preparation of hydroxyarylglyoxylic acids, starting from hydroxyarylglycolic acids by catalytic oxidation in an aqueous alkaline medium, to a pH higher than, or equal to, 11.5 by oxygen or an oxygen-containing gas, the improvement in which said process is carried out in a homogeneous phase, at a temperature lower than, or equal to, 30° C., and in the presence of cupric ions, and at the end of the reaction, the desired acid is isolated by acidification from the reactional medium.

4,384,138

PROCESS AND COMPOSITIONS

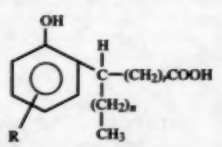
Robert E. Karll, Batavia, and Richard J. Lee, Downers Grove, both of Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Continuation-in-part of Ser. No. 831,732, Sep. 9, 1977, Pat. No. 4,142,980. This application Sep. 25, 1978, Ser. No. 945,316

Int. Cl.³ C07C *65/01*

U.S. Cl. 562—478 **2 Claims**

1. A disubstituted phenol having the formula:



where R comprises alkyl substituent containing from about 50 to about 20,000 carbon atoms, and n and r are integers such that $n+r \leqq 5 \geqq 15$.

4,384,139

PROCESS FOR PREPARATION OF AN OPTICALLY ACTIVE β-MERCAPTOALKANOIC ACID

Takehisa Ohashi, Kobe; Masami Shimazaki, Takasago; Kenji Nomura; Kazunori Kan, both of Kobe, and Kiyoshi Watanabe, Akashi, all of Japan, assignors to Kanegafuchi Chemical Industry Company, Limited, Osaka, Japan

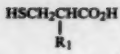
Filed Aug. 18, 1981, Ser. No. 294,028

Claims priority, application Japan, Aug. 20, 1980, 55/115053

Int. Cl.³ C07C *51/363*

U.S. Cl. 562—512 **18 Claims**

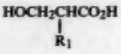
1. A process for preparing an optically active β-mercaptoalkanoic acid represented by formula (I):



(I)

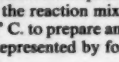
wherein R_1 is lower alkyl having from 1 to 4 carbon atoms, which comprises

(1) reacting an optically active β-hydroxyalkanoic acid represented by formula (II):



(II)

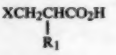
wherein R_1 is the same as defined above, with thionyl chloride or thionyl bromide in the presence of a catalyst by keeping the temperature of the reaction mixture at not more than 25° C. when thionyl chloride or thionyl bromide is mixed with the compound (II) and then raising the temperature of the reaction mixture up to from about 30° C. to about 100° C. to prepare an optically active β-haloalkanoyl halide represented by formula (III):



(III)

wherein X is chlorine or bromine and R_1 is the same as defined above;

(2) reacting the β-haloalkanoyl halide with water or an aqueous alkaline solution to prepare an optically active β-haloalkanoic acid represented by formula (IV):



(IV)

wherein X and R_1 are each the same as defined above, or a salt thereof, respectively; and

(3) reacting the β-haloalkanoic acid or the salt thereof with an alkali metal salt of hydrogen sulfide or ammonium hydrogen sulfide, of which the molar ratio to the compound (IV) is from about 1 to about 10 and of which the concentration in the reaction system is from about 5 wt% to about 10 wt%, in water or a polar aprotic solvent at a temperature of from about 30° C. to about 100° C., the configuration of the compound (II), (III) and (IV) being retained throughout the process to prepare the compound represented by formula (I).

4,384,140

2-CHLOROETHYL UREA DERIVATIVES

Peter Bregnedal, Allerod, and Jorn L. M. Buus, Bjaeverskov, both of Denmark, assignors to Kefalas A/S, Copenhagen-Valby, Denmark

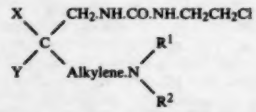
Division of Ser. No. 191,910, Sep. 29, 1980. This application Feb. 16, 1982, Ser. No. 348,724

Claims priority, application United Kingdom, Oct. 3, 1979, 7934306

Int. Cl.³ C07C *127/17*

U.S. Cl. 564—56 **6 Claims**

1. A compound of the formula:



wherein X and Y are the same or different and are each selected from the group consisting of phenyl and phenyl substituted with halogen, "alkylene" is an alkylene group having one to four carbon atoms inclusive, and R^1 and R^2 are the same or different and are each lower alkyl having one to four carbon atoms inclusive, and acid addition salts thereof.

4,384,141

PREPARATION OF α-BROMOACETOPHENONE-OXIME-ETHERS

Peter Schaefer, Kirchheim, and Dietrich Mangold, Neckargemuend, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

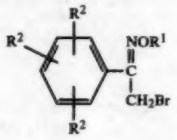
Filed Nov. 5, 1981, Ser. No. 318,573

Claims priority, application Fed. Rep. of Germany, Nov. 26, 1980, 3044564

Int. Cl.³ C07C *131/00*

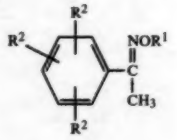
U.S. Cl. 564—256 **14 Claims**

1. A process for the preparation of α-bromoacetophenone-oxime-ethers of the formula



I

where R^1 is an araliphatic radical and R^2 is hydrogen, halogen or an aliphatic radical, the individual R^2's being identical or different, which comprises: reacting an acetophenone-oxime-ether of the formula



II

where R^1 and R^2 have the above meanings, with a brominating agent at from 20° to 100° C., in the absence of light.

4,384,142

PRODUCTION OF CYCLOHEXYLAMINE

Helmut L. Merten, Hudson, and Gene R. Wilder, Medina, both of Ohio, assignors to Monsanto Company, St. Louis, Mo.

Filed Jun. 9, 1981, Ser. No. 271,869

Int. Cl.³ C07C *85/24*

U.S. Cl. 564—450 **8 Claims**

1. The process of hydrogenating aniline to produce cyclohexylamine comprising subjecting aniline to hydrogen pressure in contact with a ruthenium catalyst in the presence of from about 1 to about 8 parts by weight of ammonia per 100 parts by weight of aniline at an absolute pressure of from about 2 to 5 MPa and at a temperature of from 160° to 180° C.

4,384,143

PROCESS FOR PREPARING PURIFIED BIS(3,5-DIALKYL-4-HYDROXYPHENYL) SULFONE

Daniel W. Fox, Pittsfield, and Edward N. Peters, Lenox, both of Mass., assignors to General Electric Company, Pittsfield, Mass.

Filed May 1, 1981, Ser. No. 259,523

Int. Cl.³ C07C *147/10*

U.S. Cl. 568—33 **5 Claims**

1. A process for the purification of crude bis(3,5-dialkyl-4-hydroxyphenyl) sulfone, said process consisting essentially of:

(a) forming a solution of said crude sulfone in concentrated aqueous ammonium hydroxide;

(b) heating said solution to from about 50° to 90° C. to vaporize ammonia and effect selective precipitation of sulfone; and

(c) removing the solid bis(3,5-dialkyl-4-hydroxyphenyl) sulfone from the supernatant solution.

4,384,144

PROCESS FOR PREPARING CYCLOPENTENONE DERIVATIVES

Tatsuya Shono, Kyoto, and Yoshihiro Matsumura, Takatsuki, both of Japan, assignors to Otsuka Kagaku Yakuhin Kabushiki Kaisha, Osaka, Japan

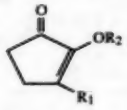
Continuation-in-part of Ser. No. 778,452, Mar. 17, 1977, abandoned. This application Aug. 26, 1981, Ser. No. 296,367

Claims priority, application Japan, Apr. 5, 1976, 51/38405

Int. Cl.³ C07C *45/59, 45/61*

U.S. Cl. 568—347 **9 Claims**

1. A process for preparing a cyclopentenone derivative of the formula:

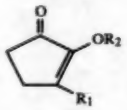


wherein R_1 is methyl or ethyl, and R_2 is hydrogen, methyl or acetyl, comprising cyclizing a 1,4-diketone derivative of the formula:

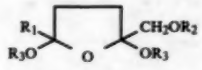
$$R_1COCH_2CH_2COCH_2OR_2$$

wherein R_1 and R_2 are as defined above, at a temperature of from room temperature to about 130° C. in the presence of a basic catalyst selected from the group consisting of hydroxides, carbonates, bicarbonates and acetates of alkali metals and of alkaline earth metals; trimethylamine; triethylamine; pyridine and basic ion exchange resins.

2. A process for preparing cyclopentenone derivatives of the formula:



wherein R_1 is methyl or ethyl, and R_2 is hydrogen, methyl or acetyl, comprising: hydrolyzing a tetrahydrofuran derivative of the formula:



wherein R_1 and R_2 are as defined above, and R_3 is methyl or ethyl, at a temperature of from about −15° to about 100° C. and in the presence of an acid catalyst to produce a 1,4-diketone derivative represented by the formula:

$$R_1COCH_2CH_2COCH_2OR_2$$

wherein R_1 and R_2 are as defined above; and cyclizing the 1,4-diketone derivative at a temperature of from room temperature to about 130° C. in the presence of a basic catalyst selected from the group consisting of hydroxides, carbonates, bicarbonates and acetates of alkali metals and of alkaline earth metals; trimethylamine; triethylamine; pyridine and basic ion exchange resins.

4,384,145

PROCESS FOR THE PREPARATION OF PINACOLONE

Otto Berendes, Dormagen, and Peter Siegle, Cologne, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jun. 24, 1981, Ser. No. 276,841

Claims priority, application Fed. Rep. of Germany, Jul. 8, 1980, 3025777

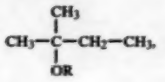
Int. Cl.³ C07C *1/00*

U.S. Cl. 568—391 **13 Claims**

1. Process for the preparation of pinacolone of the formula

$$(CH_3)_3C—CO—CH_3 \quad (I)$$

which process comprises reacting a 2-alkoxy-2-methylbutane of the formula



(II)

wherein

R is alkyl of from 1 to 4 carbon atoms

with formaldehyde at a temperature of 40° to 100° C., in an aqueous medium and in the presence of a strong inorganic acid.

4,384,146

PROCESS FOR BUTANEDIOLS

Sunny C. Tang, Katy, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Dec. 14, 1979, Ser. No. 103,658

Int. Cl.³ C07C *31/20, 179/06*

U.S. Cl. 568—861 **11 Claims**

1. A process for the production of 1,4-butanediol and 1,2-butanediol which comprises:

(a) reacting 1,3-butadiene with tert-butyl hydroperoxide in an added reaction solvent selected from the class consisting of liquid aromatics, alcohols, paraffins and cyclic or acyclic ethers, in the presence of an unreduced cobalt on silica catalyst, to obtain a peroxidation reaction mixture comprising 1,4-di(tert-butylperoxy)butene-2 and 3,4-di(-tert-butylperoxy)butene-1;

(b) catalytically hydrogenating the 1,4-di(tert-butylperoxy)-butene-2 and the 3,4-di(tert-butylperoxy)butene-1 to obtain 1,4-butanediol and 1,2-butanediol.

4,384,147

PREPARATION OF CATALYSTS AND THEIR USE FOR THE HYDROGENATION OF ACETYLENE-ALCOHOLS

Karl Baer, Weinheim; Wolfgang Reiss, Ludwigshafen; Wolfgang Schroeder, Bad Duerkheim, and Dieter Voges, Mannheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Division of Ser. No. 143,486, Apr. 24, 1980, Pat. No. 4,287,099. This application Jan. 28, 1981, Ser. No. 229,282

Claims priority, application Fed. Rep. of Germany, Apr. 27, 1979, 2917018

Int. Cl.³ C07C *31/20, 29/17, 89/00*

U.S. Cl. 568—861 **3 Claims**

1. A process for hydrogenating acetylene-alcohols which comprises: contacting the acetylene-alcohols with a hydrogenation catalyst containing the oxides of the metals nickel, copper and molybdenum, with or without manganese, said catalysts being prepared by precipitating a solution of salts of the metals with an alkali metal carbonate, filtering the resulting suspension and washing, drying and heating the filter residue, wherein an aluminum salt and/or iron salt is added to the metal salt solution, the precipitation is carried out at from 35° to 95° C. and a pH of from 5 to 9 and the heating is carried out at from 350° to 700° C., and the amount of metal salts is so chosen that, after heating, the catalyst consists of from 5 to 70 percent of

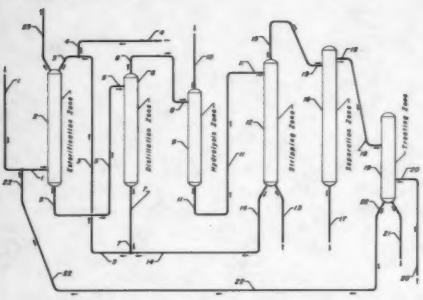
aluminum oxide and/or iron oxide, the remainder being principally nickel oxide and, based on nickel oxide, from 20 to 40 percent by weight of copper oxide, from 0.5 to 6 percent by weight of molybdenum oxide and from 0 to 10 percent by weight of manganese oxide.

4,384,148

HYDRATION OF OLEFINS

Robert J. Schmidt, Rolling Meadows, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed Feb. 26, 1982, Ser. No. 352,840
Int. Cl.³ C07C *29/04, 29/10, 27/02*
U.S. Cl. 568—907 13 Claims



1. A process for the hydration of an olefinic hydrocarbon which comprises:

(a) esterifying said olefinic hydrocarbon with an organic acid at esterifying conditions in an esterification zone to form an organic ester;

(b) hydrolyzing said organic ester with water at hydration conditions in a hydration zone to form an alcohol and ether hydrolysis product containing reconstituted organic acid;

(c) stripping said alcohol and ether hydrolysis product from said reconstituted organic acid;

(d) separating said alcohol from said ether at separation conditions in a separation zone and recovering said alcohol as a primary product stream of said process;

(e) thermally decomposing said ether of step (d) in a thermal decomposition zone at a temperature in the range of from about 500° C. to about 750° C. and a pressure in the range of from subatmospheric pressure to about 1500 psi to produce olefinic hydrocarbons and alcohol as a secondary product stream of said process; and

(f) recovering both primary and secondary product alcohol streams.

4,384,149

PROCESS FOR THE PREPARATION OF 1-NITROALKENE

Shigeto Suzuki, San Francisco, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Jul. 6, 1981, Ser. No. 280,427
Int. Cl.³ C07B *11/00*
U.S. Cl. 568—943 8 Claims

1. A process for the preparation of 1-nitroalkene having 3–6 carbon atoms which comprises the steps of:

(a) contacting a 1-alkene having 3–6 carbon atoms with dinitrogen tetroxide in the presence of oxygen and an ether solvent at a temperature of from about −30° C. to about 70° C. to form an alkene-dinitrogen tetroxide adduct; and

(b) contacting said adduct with sodium fluoride in the presence of an inert gas at a temperature of from about 150° C. to about 300° C.

4,384,150

METHOD OF MAKING EITHER A SOFTENER FOR RUBBER MIXTURES OR A FURNACE FUEL OIL

Genrikh D. Lyakhevich, ulitsa Matusevicha, 3, kv. 146; Alexandr E. Sokolovsky, ulitsa Olshevskogo, 33, korpus 1, kv. 67, both of, Minsk; Vasily G. Suzansky, ulitsa Gorkogo, 28, kv. 33, and Vulf P. Kovalerchik, ulitsa Oktyabrskaya, 197, kv. 78, both of, Bobruisk, all of U.S.S.R.

Filed Aug. 20, 1981, Ser. No. 294,607
Int. Cl.³ C07C *3/08, 3/26*
U.S. Cl. 585—241 6 Claims

1. A method of making either a softener for rubber mixtures or a furnace fuel oil, comprising the steps of:

a. heating to a temperature of from 150° to 600° C. a hydrocarbonaceous solvent selected from the group consisting of oil fractions having boiling temperatures of 40° to 120° C., 50° to 250° C., 250° to 400° C. and 200° to 500° C., coke-chemical fractions having boiling temperatures of 320° to 535° C., and furnace fuel oils produced according to the presently claimed method;

b. adding vulcanized or, olefinically unsaturated nonvulcanized waste rubber to said heated hydrocarbonaceous solvent under intensive stirring, wherein said waste rubber is added to said hydrocarbonaceous solvent in a ratio of 1:1 to 1:100 parts by mass;

c. thermally decomposing said waste rubber at a pressure of $5 \cdot 10^2$ to $25 \cdot 10^5$ n/m^2 and at a temperature of 150° to 485° C. for 1 to 300 seconds, said hydrocarbonaceous solvent continuously circulating through the reaction mixture at a rate of 1 to 30 l/hr per 1 kg of the waste rubber; and

d. separating the end product from the formed suspension by distillation at a temperature of 200° to 560° C. and at a pressure of 10 to $2 \cdot 10^5$ n/m^2 in the presence of an inert gaseous agent.

4,384,151

PROCESS AND APPARATUS FOR THERMALLY CONVERTING USED OR WASTE TIRES TO MATERIALS USABLE AS FUELS

François Audibert, Ecully; Pierre Trambouze, Caluire, both of France, and Hugo Van Landeghem, deceased, late of Oytier Saint Oblas, France (by Heynderick R. Van Landeghem, legal representative), assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Filed Sep. 29, 1981, Ser. No. 306,815
Claims priority, application France, Sep. 29, 1980, 80 20884
Int. Cl.³ C07C *4/00*
U.S. Cl. 585—241 8 Claims

1. In a process for converting used or waste tires to liquid and gaseous products, wherein the tires are heated in contact with a hydrocarbon oil at a temperature of 300°–500° C., and the resultant liquid and gaseous products are separated from the undecomposed casings and recovered,

the improvement comprising spraying a hydrocarbon oil heated to 350°–500° C. onto whole or coarsely cut tires, using spray means, in an amount of 1.5–4 parts by weight of oil per part by weight of tires, the tires being contained in a container whose walls permit passage of oil therethrough while retaining the tires; condensing volatile liquids produced by decomposition of the tires and recovering the resultant condensate; collecting the oil in a collecting tank after it has flowed over the tires and out of the container; and recirculating at least a portion of the collected oil to the spray means at an hourly rate of 5–100 cubic meters of oil per metric ton of tires, the recirculation being continued for a time sufficient to convert the tires to liquid and gaseous products, leaving the undecomposed casings in the container;

whereby less oil and less heat are required than would be required to immerse the tires in a bath of the oil, a higher rate of gum decomposition is achieved, and foam accumulation is reduced.

4,384,152

ANTHRACENE PRODUCTION FROM PHENANTHRENE

Kurt Handrick, Essen-Steele; Georg Kölling, Essen, and Fritz Mensch, Essen-Steele, all of Fed. Rep. of Germany, assignors to Bergwerksverband GmbH, Essen, Fed. Rep. of Germany

Filed Dec. 18, 1980, Ser. No. 218,000

Claims priority, application Fed. Rep. of Germany, Dec. 22, 1979, 2952062

Int. Cl.³ C07C *1/00, 2/00, 4/00*

U.S. Cl. 585—320 27 Claims

1. A method for production of anthracene by hydrogenation of phenanthrene in the presence of a nickel catalyst at elevated temperature and elevated pressure by forming sym.-octahydrophenanthrene, by isomerization of the same in the presence of an aluminum chloride catalyst at lower temperature to sym.-octahydroanthracene and by catalytic dehydrogenation of the sym.-octahydroanthracene, the improvement comprising

hydrogenating phenanthrene at a nickel catalyst on a support at a temperature from about 140° C. to 170° C. under a pressure of from about 10 to 30 bar by gradual addition of hydrogen;

separating the hydrogenation product by distillation into sym.-octahydrophenanthrene and asym.-octahydrophenanthrene;

isomerizing the sym.-octahydrophenanthrene in the presence of methylenechloride as a solvent and of aluminum chloride as a catalyst at a temperature of from about −30° C. to +5° C. to sym.-octahydroanthracene; and

dehydrogenating the sym.-octahydroanthracene at a chromium oxide - aluminum oxide catalyst at a temperature from about 450° C. to 550° C.

4,384,153

DIELS-ALDER CYCLIZATION OVER LOW ACIDITY LARGE-PORE ZEOLITES

Ralph M. Dessau, Edison, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Mar. 18, 1982, Ser. No. 359,397

Int. Cl.³ C07C *3/035*

U.S. Cl. 585—366 4 Claims

1. A process for cyclodimerization of a conjugated alkadiene which comprises contacting a conjugated alkadiene-containing feedstock with ZSM-20 zeolite catalyst having an Alpha value less than about 1.0, at a temperature between about 150°–300° C. to yield cyclodimerized product.

4,384,154

CONVERSION OF ISOBUTENE TO AROMATICS

Lynn H. Slaugh, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Continuation-in-part of Ser. No. 219,279, Dec. 22, 1980, Pat. No. 4,335,022, which is a continuation-in-part of Ser. No. 61,205, Jul. 27, 1979, abandoned. This application Mar. 5, 1982, Ser. No. 355,012

Int. Cl.³ C07C *2/04*

U.S. Cl. 585—415 10 Claims

1. A process for dehydrocoupling isobutene to aromatics which comprises contacting the isobutene at about 450° C.–650° C. with a catalyst prepared by a process which comprises impregnating a substantially dehydrated amorphorous silica gel with aluminum hydride dissolved in an anhydrous, non-hydroxyl containing organic solvent, drying the impregnated silica to remove the solvent and subsequently heating the impregnated silica at a temperature of about 300° C. to about 900° C. in a non-oxidizing atmosphere.

4,384,155

SHAPE SELECTIVE REACTIONS WITH CADMIUM-MODIFIED ZEOLITE CATALYSTS

Chin-Chiun Chu, North Brunswick, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 139,611, Apr. 11, 1980, abandoned. This application Nov. 4, 1981, Ser. No. 318,239

Int. Cl.³ C07C *2/68*

U.S. Cl. 585—466 12 Claims

1. A process for para-selective alkylation, transalkylation or disproportionation of a substituted aromatic compound to form a dialkylbenzene compound mixture rich in the 1,4-dialkylbenzene isomer, said process comprising contacting said aromatic compound with a crystalline zeolite catalyst composition at a temperature of between about 250° C. and about 750° C. and a pressure within the approximate range of 10^5 N/m^2 to 10^7 N/m^2, said catalyst comprising a zeolite characterized by a silica to alumina mole ratio of at least 12 and a constraint index within the approximate range of 1 to 12, said catalyst having incorporated thereon at least about 0.25 percent by weight of cadmium and at least about 0.25 weight percent of the element phosphorus, said cadmium and said phorphorus both being present in said catalyst in the form of their oxides.

4,384,156

METHOD FOR PROMOTING ALUMINUM CHLORIDE CATALYZED ISOMERIZATION OF SYM-OCTAHYDROPHENANTHRENE TO SYM-OCTAHYDROANTHRACENE WITH AROYL HALIDE

William T. Gormley, Pittsburgh, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.

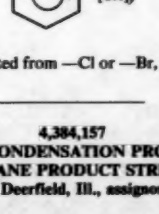
Filed Mar. 5, 1982, Ser. No. 355,177

Int. Cl.³ C07C *5/24, 5/28*

U.S. Cl. 585—477 10 Claims

1. In a process for the conversion of sym-octahydrophenanthrene to sym-octahydroanthracene in the presence of catalyst comprising $AlCl_3$, or $AlBr_3$, or a mixture thereof, the improvement for increasing the rate of conversion of the sym-octahydrophenanthrene to sym-octahydroanthracene with said catalyst which comprises:

carrying out the conversion in the presence of an effective amount of a promoter selected from a group of compounds represented by the general formula



wherein "X" is selected from —Cl or —Br, and wherein "y" is 0 or 1.

4,384,157

CATALYTIC CONDENSATION PROCESS WITH PROPANE PRODUCT STREAM

Richard R. DeGraff, Deerfield, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed Mar. 31, 1982, Ser. No. 364,108

Int. Cl.³ C07C *3/16*

U.S. Cl. 585—514 10 Claims

1. A hydrocarbon conversion process which comprises the steps of:

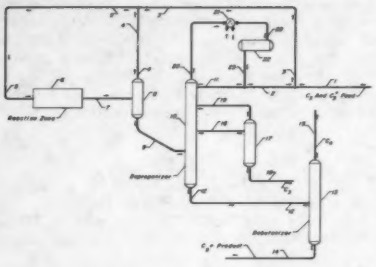
(a) passing a feed stream comprising propylene and propane, a hereinafter characterized recycle stream which also comprises propane and propylene and a hereinafter characterized first net fractionation column overhead stream into a catalytic condensation reaction zone wherein the entering hydrocarbons are contacted with a catalyst at

conditions effective to produce a reaction zone effluent stream which comprises propane, propylene and C_6-plus hydrocarbons;

(b) separating the reaction zone effluent stream into a vapor-phase stream, which is returned to the catalytic condensation reaction zone as said recycle stream, and a liquid-phase stream comprising propane, propylene and C_6-plus hydrocarbons;

(c) passing the liquid-phase stream into a first fractionation column;

(d) passing a sidecut stream comprising propane and propylene and which is withdrawn above the feed point of the first fractionation column into a stripping column wherein the sidecut stream is separated into a second net overhead



stream which is passed into the first fractionation column and a first net bottoms stream which is substantially free of propylene, and withdrawing the first net bottoms stream from the process;

(e) withdrawing from the first fractionation column a second net bottoms stream which is substantially free of propane and which comprises C_6-plus hydrocarbons; and,

(f) forming a net overhead liquid stream which comprises propane and propylene from an overhead vapor stream removed from the first fractionation column, and passing the net overhead liquid stream into the catalytic condensation reaction zone as the previously referred to first net fractionation column overhead stream.

4. The process of claim 1 further characterized in that an SPA-type catalyst is employed in the reaction zone.

4,384,158

METHOD FOR THE PREPARATION OF CIS-11-HEXADECEN-1-YNE

Toshinobu Ishihara; Akira Yamamoto, and Kenichi Taguchi, all of Joetsu, Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Jul. 14, 1981, Ser. No. 283,298
Claims priority, application Japan, Jul. 21, 1980, 55-99598
Int. Cl.³ C07C *2/00*
U.S. Cl. 585—534 **3 Claims**

1. A method for the preparation of cis-11-hexadecen-1-yne which comprises reacting 8-bromo-1-octyne and cis-3-octenylmagnesium chloride.

4,384,159

CATALYTIC DEHYDROHALOGENATION PROCESS

Ronald W. Diesen, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Mar. 12, 1982, Ser. No. 357,508
Int. Cl.³ C07C *1/00*
U.S. Cl. 585—642 **4 Claims**

1. A process for the dehydrochlorination of saturated C_{1-6} hydrochlorocarbons comprising contacting the hydrochlorocarbon in the gaseous phase with a synthetic siliceous zeolite selected from the group consisting of ZSM-5 and silicalite.

4,384,160

PREQUENCH OF CRACKED STREAM TO AVOID DEPOSITS IN DOWNSTREAM HEAT EXCHANGERS

Frank Skraba, Sweeny, Tex., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Oct. 22, 1980, Ser. No. 199,129
Int. Cl.³ C07C *4/02*
U.S. Cl. 585—650 **8 Claims**

1. A process for the cracking of a hydrocarbon stream comprising:

(a) at least partially cracking a hydrocarbon stream in a heating zone at a temperature at which carbonaceous material will form and deposit downstream,

(b) passing the at least partially cracked hydrocarbon stream from said heating zone directly to a prequench zone,

(c) prequenching, in said prequench zone, said at least partially cracked hydrocarbon stream with a prequench stream comprising at least one hydrocarbon that can be cracked in said prequench zone, and

(d) passing the quenched hydrocarbon stream through a transfer line heat exchange zone to recover usable heat.

4,384,161

HETEROGENEOUS ISOPARAFFIN/OLEFIN ALKYLATION

Tracy J. Huang, Lawrenceville, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Mar. 15, 1982, Ser. No. 357,946
Int. Cl.³ C07C *2/58*
U.S. Cl. 585—722 **16 Claims**

1. An alkylation process which comprises effecting reaction of an isoparaffin containing from 4 to 20 cabon atoms with an olefin containing from 2 to 12 carbon atoms at from about −20° C. to about 250° C. and at a pressure in the range of atmospheric to about 5000 psig employing a reaction mixture wherein the molar ratio of said isoparaffin to said olefin is from 2 to 20 in contact with a composite catalyst comprising an large pore zeolite which is capable of absorbing 2,2,4-trimethylpentane and a Lewis acid.

4,384,162

REMOVING BORON TRIFLUORIDE CONTAMINANT FROM ORGANIC LIQUIDS WITH POLYVINYL ALCOHOL

Roger F. Vogel, Jefferson Township, Butler County, Pa.; Ajay M. Madgavkar, Irvine, Calif., and Harold E. Swift, Gibsonia, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed Jul. 8, 1982, Ser. No. 396,255
Int. Cl.³ C07C *7/12*; C10G *17/00*
U.S. Cl. 585—830 **13 Claims**

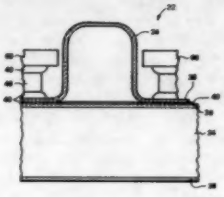
1. A method for removing boron trifluoride as a minor contaminant in an organic liquid which comprises contacting a boron trifluoride-contaminated organic liquid with a particulate polyvinyl alcohol composition.

4,384,163

ULTRA LIGHTWEIGHT FOLDING PANEL STRUCTURE

Hans S. Rauschenbach, Torrance; Saul Bashin, Sepulved, and Barry N. Smith, Palos Verdes Estates, all of Calif., assignors to TRW Inc., Redondo Beach, Calif.

Filed Apr. 27, 1981, Ser. No. 258,161
Int. Cl.³ H01L 31/04; B64G 1/10
U.S. Cl. 136—245 9 Claims



1. A deployable panel structure comprising:

a support;

an extensible member attached to said support, said extensible member being deployable outwardly from said support;

a plurality of panels hinged edge to edge along hinge lines perpendicular to the direction of deployment by a first hinge means, said panels comprising two layers of thin film substrate, each layer of said substrate having parallel rows of ribs formed into said substrate, said ribs providing bending stiffness in the direction of said ribs, said layers of substrate being bonded back to back to one another with the rib axes orthogonally oriented to one another, said panels thereby being provided with bending stiffness about both axes of the panel;

a second hinge means joining the inner edge of the innermost panel to said support; and

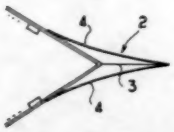
a third hinge means joining the outermost panel to the outer end of said extensible member at said outermost panel's outermost extremity.

4,384,164

SYSTEMS FOR FOLDING AND STABILIZING SOLAR PANELS

Daniel C. Richard, Wassenaar, Netherlands, assignor to Organisation Europeenne de Recherches Spatiales, France

Filed Jul. 13, 1981, Ser. No. 282,815
Claims priority, application France, Jul. 11, 1980, 80 15502
Int. Cl.³ H01L 31/04
U.S. Cl. 136—245 16 Claims



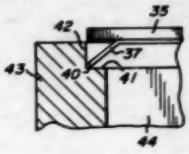
1. Apparatus comprising flexible and continuous solar arrays, wherein said solar arrays have fold lines formed on each array at regular intervals, and wherein said apparatus includes systems for folding said solar arrays, said folding systems including (1) V-shaped elements whose rigidity outside the plane of the unfolded array is greater than that of the folded array, each of said V-shaped elements being fixed by one of its free ends to the solar array on one side of a fold line of an array and being fixed by the other of its free ends to the solar array on the other side of the fold line, and (2) stretchers connecting the tip of the V of each of said V-shaped elements to said fold line.

4,384,165

RADIO FREQUENCY SHIELD WITH FORCE MULTIPLIER INTERCONNECTION FINGERS FOR AN ELECTROMAGNETIC GASKET

Robert O. Loving, Jr., Streamwood; Thaddeus J. Zakrzewski, Chicago; Robert B. Stedman, Algonquin, and Daryl F. Osberg, Hoffman Estates, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Sep. 14, 1981, Ser. No. 301,793
Int. Cl.³ H05K 9/00
U.S. Cl. 174—35 GC 3 Claims



1. An electromagnetic gasket arrangement for mating a first and second piece of an electromagnetic enclosure, said gasket arrangement comprising,

a first enclosure piece with attached highly resilient finger projections on the periphery of said first enclosure piece,

a second enclosure piece with side walls and associated shoulders defining an opening that receives said first piece,

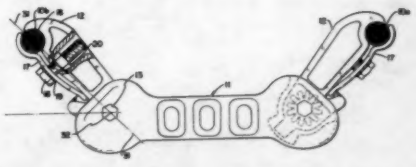
said finger projections having tips which engage said second piece shoulder and side walls when said first piece mates with said second piece such that an engagement force applied to said first piece is resisted by a much greater resisting force along the longitudinal axis of said finger projections, said resisting force causes said finger projection tips to exert a sufficient pressure against said side walls to pierce their surface and thereby provide reliable electrical contact along the mating edges of said first and second enclosure pieces.

4,384,166

COULOMB-TYPE VIBRATION ABSORBER FOR SUSPENDED CABLES AND SUSPENDED CABLE COMBINED THEREWITH

Olaf Nigol, Etobicoke, and Herbert J. Houston, Oakville, both of Canada, assignors to Slater Steel Industries Limited, Hamilton, Canada

Continuation-in-part of Ser. No. 216,870, Dec. 16, 1980, abandoned. This application Sep. 10, 1981, Ser. No. 300,751
Int. Cl.³ H02G 7/14, 7/12
U.S. Cl. 174—42 14 Claims



3. In combination, a suspended cable having a mechanical characteristic impedance given by $\sqrt{Tm}$, where T is the cable tension and m is the cable mass per unit length; and

a coulomb-type vibration absorber for said cable, comprising:

a frame;

a first annular member secured to said frame and having an exposed frictional surface;

a clamp body having a first portion engaging said cable in a predetermined position and a second portion rotatably

mounted to said frame for rotation of said clamp body about an axis generally parallel to said predetermined position of said cable;

a second annular member secured to said second portion of said clamp body, having an exposed frictional surface in rotating frictional engagement with said exposed frictional surface of said first annular member;

resilient means coupling said clamp body to said frame; and

means for adjusting the coulomb frictional force between said exposed frictional surfaces, said frictional force generating frictional losses upon vibration of said cable which substantially exceed any hysteresis losses within said annular members, so that the coulomb frictional force between said first and second annular members provides dissipative damping for both said cable and said resilient means, with a damping factor equal to $k\sqrt{Tm}$, where $0.5 \leq k \leq 3$.

14. A coulomb-type vibration absorber for suspended cables, comprising:

a frame having two opposed spaced-apart portions;

a first annular member secured to one of said frame portions and having an exposed frictional surface;

a clamp body having a first portion for engaging a cable in a predetermined position and a second portion rotatably mounted to said frame for rotation of said clamp body about an axis generally parallel to a predetermined position of a cable, said second portion of said clamp body having first and second opposed major surfaces;

a second annular member secured to said first major surface and having an exposed frictional surface remote from said first major surface and in rotating frictional engagement with said exposed frictional surface of said first annular member,

the coefficient of static friction between said exposed frictional surfaces being substantially equal to the coefficient of kinetic friction therebetween;

a third annular member secured to said second major surface and to the other of said frame portions and disposed therebetween, said third annular member comprising a resilient material; and

means for adjusting the coulomb frictional force between said exposed frictional surfaces, said adjusting means comprising a bolt extending along said axis through said frame portions, members and clamp body and a nut threadably attached to said bolt,

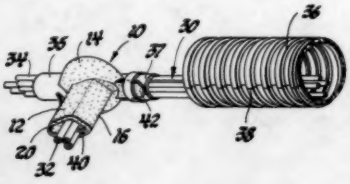
said frictional force generating frictional losses upon vibration of a cable which substantially exceed any hysteresis losses within said annular members, so that the coulomb frictional force between said first and second annular members provides dissipative damping for both a cable and said resilient annular member.

4,384,167

BREAK-OUT PROTECTOR AND WIRING HARNESS INCLUDING SAME

Charles R. Nestor, Niles, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Feb. 19, 1982, Ser. No. 350,266
Int. Cl.³ H02G 3/04
U.S. Cl. 174—71 R **3 Claims**



1. A break-out protector for a wiring harness having a main bundle of leads disposed in an axially slit tube and a break-out lead or leads which extend through the slit of the axially slit tube, said break-out protector being a one piece molding of thermoplastic material comprising:

a tubular body having an outwardly flared skirt at one end,

a wedge-shaped portion in the wall of the tubular body for spreading the slit of the tube,

an axial slit through the wall of the tubular body which extends for the entire length of the tubular body to pass a break-out lead or leads into the tubular body,

a wavy edge on the annular skirt which has diametrically opposed dips which are coplanar with the wedge-shaped portion of the tubular body, and

a slot in the annular skirt which extends from the wavy edge to the axial slit of the tubular body.

3. The combination comprising:

a wiring harness having a main bundle of leads disposed in an axially slit, corrugated tube of stiff plastic material and a break-out lead or leads which extend through the slit of the corrugated tube, and

a break-out protector around the break-out lead or leads,

said break-out protector being a one piece molding of thermoplastic material and including:

a tubular body which is transverse to the corrugated tube and which has an outwardly flared skirt at one end which is disposed in the corrugated tube,

a wedge-shaped portion in the wall of the tubular body for spreading the slit of the corrugated tube,

an axial slit through the wall of the tubular body which extends for the entire length of the tubular body to pass the break-out lead or leads into the tubular body,

a wavy edge on the annular skirt which has diametrically opposed dips which are coplanar with the wedge-shaped portion of the tubular body,

and

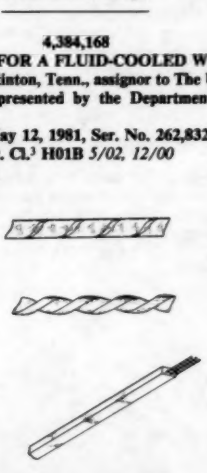
a slot in the annular skirt which extends from the wavy edge to the axial slit of the tubular body.

4,384,168

CONDUCTOR FOR A FLUID-COOLED WINDING

Walter J. Kenney, Clinton, Tenn., assignor to The United States of America as represented by the Department of Energy, Washington, D.C.

Filed May 12, 1981, Ser. No. 262,832
Int. Cl.³ H01B 5/02, 12/00
U.S. Cl. 174—126 S **4 Claims**



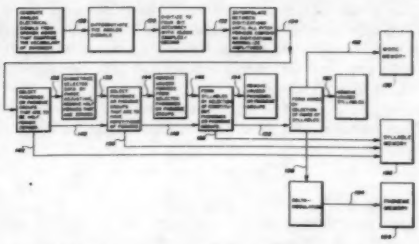
1. An electrical conductor for an electrical winding whose temperature is controlled by a fluid communicating with said conductor, comprising:

a generally rectangular cross section superconducting member having a plurality of helical grooves formed in the periphery of said member by twisting an elongated, rectangular cross section, composite superconductor about its longitudinal axis and subsequently reshaping the previously twisted superconductor into said generally rectangular cross section.

4,384,169
METHOD AND APPARATUS FOR SPEECH SYNTHESIZING

Forrest S. Mozer, 38 Sumerset Pl., Berkeley, Calif. 94707, and Richard P. Staudubar, Berkeley, Calif., assignors to Forrest S. Mozer, Berkeley, Calif.

Division of Ser. No. 761,210, Jan. 21, 1977, Pat. No. 4,214,125, which is a continuation of Ser. No. 632,140, Nov. 14, 1975, abandoned, which is a continuation-in-part of Ser. No. 525,388, Nov. 20, 1974, abandoned, which is a continuation-in-part of Ser. No. 432,859, Jan. 14, 1974, abandoned. This application Oct. 29, 1979, Ser. No. 88,790
Int. Cl.³ G10L 1/00
U.S. Cl. 179—1 SM 69 Claims



1. A method of X period zeroing information bearing signals to reduce the information content thereof without destroying the intelligibility thereof, said method comprising the steps of:

(a) deleting preselected relatively low power portions of said signals irrespective of the polarity thereof; and

(b) generating instruction signals specifying those portions of said signals deleted in step (a) to be later replaced by a constant amplitude signal of predetermined value when synthesizing said information bearing signals, the value of each said constant amplitude signal lying between the maximum and minimum values of the corresponding deleted portion of the information bearing signal.

4,384,170
METHOD AND APPARATUS FOR SPEECH SYNTHESIZING

Forrest S. Mozer, 38 Sumerset Pl., Berkeley, Calif. 94707, and Richard P. Staudubar, Berkeley, Calif., assignors to Forrest S. Mozer, Berkeley, Calif.

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Int. Cl.³ G10L 1/00
U.S. Cl. 179—1 SM 11 Claims

1. A speech synthesizer comprising: means for storing compressed digital signals corresponding to original information speech or other audio wave form time domain signals, said digital signals including information signals portions and instructions signals portions identifying particular compression techniques applied to associated information signal portions;

means for manifesting analog electrical synthesized signals corresponding to said original signals;

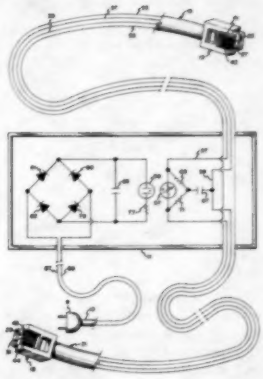
digital-to-analog converter means having an output coupled to said manifesting means, and an input; and

intermediate signal processing means having an input means coupled to said storing means for receiving said information portions and said instruction signal portions of said digital signals stored in said storing means, and an output means coupled to said digital-to-analog converter means, for expanding said information signal portions in accordance with said instruction signal portions to produce digital synthesized signals to be converted to said analog synthesized signals by said digital-to-analog converter means.

4,384,171
AUTOMATIC TELEPHONE SILENCER

Maurice M. Klee, 262 Euclid Ave., Fairfield, Conn. 06432

Filed Dec. 15, 1980, Ser. No. 216,660
Int. Cl.³ H04M 1/00, 11/00
U.S. Cl. 179—84 C 9 Claims



1. Electrically operated apparatus for automatically silencing a telephone ringer in a modular jack telephone system comprising:

means for connecting said apparatus to a source of periodic electrical current associated with a 24-hour timer;

modular connecting means compatible with a modular jack telephone system;

a conductive path electrically connected to said modular connecting means for carrying ringing current to a telephone ringer;

means for interrupting said conductive path, electrically isolated from said source of electrical current, having a closed state in which said ringer can receive sufficient ringing current to ring and an open state in which said ringer cannot receive sufficient current to ring and is silenced;

means electrically connected to said source of electrical current connecting means and associated with said interrupting means for transferring said interrupting means between said open and closed states while maintaining said interrupting means electrically isolated from said source of electrical current.

8. Apparatus for silencing a telephone ringer comprising:

a pair of conductors for carrying ringing current;

a modular connector at each end of the pair of conductors;

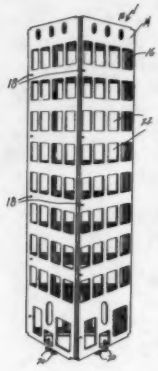
means for interrupting one of the conductors having a closed state and an open state wherein, respectively, the ringer can and cannot receive sufficient ringing current to ring; and

bridge means connected between the conductors and symmetrically arranged with respect to the interrupting means for providing an essentially identical substitute path for ringing current when the apparatus is in its open state for either end of the interrupting means connected to the telephone system.

4,384,172
TELEPHONE EQUIPMENT DISTRIBUTION PANEL STAND

Robert H. Knickerbocker, Chesire, and Karl-Heinz Pohl, Woodbury, both of Conn., assignors to The Siemon Company, Watertown, Conn.

Filed May 28, 1981, Ser. No. 267,873
Int. Cl.³ H04Q 1/14
U.S. Cl. 179—98 **4 Claims**

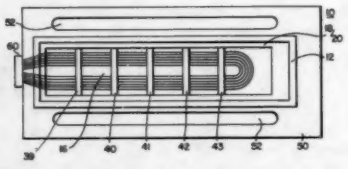


1. A telephonic distribution panel assembly comprising:
at least three panels, said panels being generally identical, rectangular and planar, each of said panels having a first flat side edge and a second side edge extending rearwardly of the panel at a predetermined angle, the first edge of each panel being releasably interlocked to the second edge of an adjacent panel to define a free-standing stand of interlocked panels, and each of said panels being provided with an array of apertures.

4,384,173
ELECTROMAGNETIC PLANAR DIAPHRAGM TRANSDUCER

Dennis K. Briefer; Michael Flitterman, and Richard Silverman, all of Berlin, Mass., assignors to Granus Corporation, Marlborough, Mass.

Filed Aug. 1, 1980, Ser. No. 174,447
Int. Cl.³ H04R 9/06
U.S. Cl. 179—115.5 PV **12 Claims**

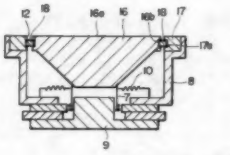


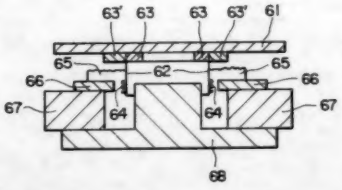
1. A loudspeaker comprising:
A. frame member defining a substantially planar central opening,
B. a diaphragm member having two opposed substantially planar surfaces, and including at least two groups of substantially parallel, elongated electrically conductive elements extending parallel to a reference axis in the plane of said central opening,
C. means for resiliently positioning said diaphragm member within and substantially parallel to the plane of said central opening,
D. means for coupling an audio frequency signal to the elements of said groups in a manner establishing equal magnitude, oppositely directed current densities in adjacent ones of said groups,
E. field means for establishing constant magnetic fields in a plurality of regions, said fields being substantially parallel to the plane of said central opening and perpendicular to said reference axis, each of said regions being associated with and including at least a portion of one of said groups, wherein the magnetic fields in regions associated with adjacent groups are oppositely directed,
wherein said field means includes at least two sets of permanent magnets having substantially linear polar axes, wherein at least two of said sets are positioned on the same side of said diaphragm and spaced apart in the direction of said reference axis, each set including at least one permanent magnet associated with each of said groups of conductive elements, and said field means further includes means for positioning the magnetic pole pairs of the magnets in each set along a common polar axis, said common polar axis being substantially parallel to the plane of said central opening and perpendicular to said reference axis, whereby each permanent magnet overlies its associated group of conductive elements and the magnetic flux from adjacent ones of said permanent magnets of said set is oppositely directed.

4,384,174
MOVING VOICE COIL LOUDSPEAKER, PERIPHERAL DIAPHRAGM SUPPORT, DIAPHRAGM CONSTRUCTION, BOBBIN TO DIAPHRAGM REINFORCEMENT

Kiyoaki Suzuki; Masaru Watanabe; Hisashi Yamamoto; Tomoharu Hayashi, and Takuji Miura, all of Yokohama, Japan, assignors to Victor Company of Japan, Limited, Yokohama, Japan

Filed Oct. 2, 1980, Ser. No. 193,004
Claims priority, application Japan, Oct. 2, 1979, 54-136429[U]; Oct. 2, 1979, 54-136430[U]; Oct. 23, 1979, 54-145856[U]
Int. Cl.³ H04R 9/06, 7/16, 7/06
U.S. Cl. 179—115.5 R **22 Claims**





1. A speaker comprising:
(a) a frame structure having a recess on an inner surface thereof;
(b) a magnetic circuit means for constituting a magnetic gap, said magnetic circuit means being fixedly connected to said frame structure;
(c) a voice coil bobbin around which a voice coil is wound,

said voice coil bobbin being reciprocally movable in said magnetic gap;

(d) a damper connected between said voice coil bobbin and said frame structure;

(e) a diaphragm fixedly connected at one side thereof to one end of said voice coil bobbin, said diaphragm being received in said frame structure without coming into contact with said frame structure and having a recess on a peripheral surface thereof; and

(f) a diaphragm supporting member made of a viscous material, said diaphragm supporting member being placed between the peripheral surface of said diaphragm and the inner surface of said frame structure in such a manner that some portions of said diaphragm supporting member fill in said recesses of said frame structure and said diaphragm.

21. A speaker comprising:

(a) a frame structure;

(b) a magnetic circuit means for constituting a magnetic gap, said magnetic circuit means being fixedly connected to said frame structure;

(c) a voice coil bobbin around which a voice coil is wound, said voice coil bobbin being reciprocally movable in said magnetic gap;

(d) a damper connected between said voice coil bobbin and said frame structure;

(e) a diaphragm fixedly connected at one side thereof to one end of said voice coil bobbin, said diaphragm being received in said frame structure without coming into contact with said frame structure;

(f) a diaphragm supporting member made of a viscous material, said diaphragm supporting member being placed between the peripheral surface of said diaphragm and the inner surface of said frame structure; and

(g) reinforcing means fixedly connected to said voice coil bobbin and to said diaphragm, said reinforcing means having an annular disk having an inside diameter substantially equal to the outside diameter of said voice coil bobbin, said reinforcing means being located outside said voice coil bobbin.

4,384,175

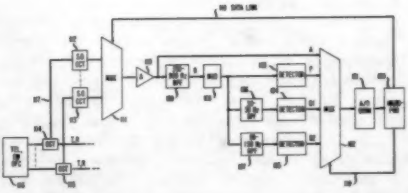
TONE DETECTION METHOD AND ARRANGEMENT FOR OBSERVING AND CLASSIFYING REPETITIVE STATUS SIGNALS

David B. Brown, Columbus, Ohio, assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Sep. 8, 1981, Ser. No. 299,888

Int. Cl.³ H04M *3/24*

U.S. Cl. 179—175.2 C **12 Claims**



1. In a communication system a method for classifying each of a plurality of repetitive signals on a communication line wherein one of the signals comprises at least two frequencies whose difference falls within a predetermined bandwidth and wherein another of said signals comprises a frequency outside said bandwidth modulated by a frequency within said bandwidth, the method comprising the steps of

removing said bandwidth from a monitored one of said signals,

modulating the remaining signal,

comparing the energy of said modulated signal that falls within said bandwidth with the total energy of said remaining signal to form a resultant signal, and

identifying the resultant signal.

4,384,176

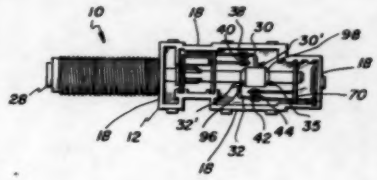
DOUBLE ACTING SWITCH

Benjamin F. Chestnut, Indianapolis, Ind., assignor to Emhart Industries, Inc., Indianapolis, Ind.

Filed Oct. 30, 1981, Ser. No. 316,559

Int. Cl.³ H01H *9/00*

U.S. Cl. 200—1 A **8 Claims**



1. A double acting switch comprising:

(a) a housing;

(b) first and second switches each comprising: a fixed electrical contact blade and a movable electrical contact blade and electrical contacts at distal ends of said fixed and movable contact blades and mating each other, a cam follower extending from said movable electrical contact blade, said first switch extending into said housing from an end thereof, said second switch extending into said housing from an opposite end thereof;

(c) an axially spring biased plunger slideably carried in said housing to be axially movable between said first and second switches;

(d) cam means carried by said plunger and selectively engaging said cam follower of said first and second switches, said cam means including coded indicia programmed to open one of said first and second switches while closing the other; and

(e) individual electrical terminals extending from outside and into said housing and electrically connected to said fixed and movable contact blades of each of said first and second switches and having apertures through which said axially spring biased plunger moves.

4,384,177

SWITCH

Toshio Kakuta, Osaka, Japan, assignor to Hosiden Electronics Co. Ltd., Osaka, Japan

Filed May 13, 1981, Ser. No. 263,244

Claims priority, application Japan, May 23, 1980, 55/68516; Sep. 5, 1980, 55/12327

Int. Cl.³ H01H *21/02*; H04M *1/04*; H01H *19/02*

U.S. Cl. 200—5 R **21 Claims**

1. A switch comprising:

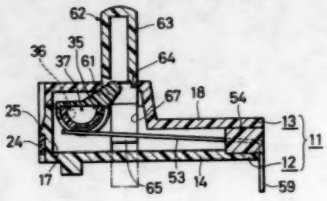
a casing;

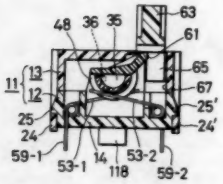
a segment holder fabricated of an insulating material and mounted for rotation in said casing, said segment holder being substantially semicylindrical in shape and having a circumferential surface whose cross section is an arc of a circle, and the axis of rotation of said segment holder being eccentrically displaced from the concentric axis of said circumferential surface;

at least one conductive segment mounted on said circumferential surface of said segment holder, a surface of said conductive segment occupying at least a part of said circumferential surface;

a plurality of contact wires fixedly supported by said casing so as to extend therefrom in a direction perpendicular to

said axis of rotation of said segment holder, said contact wires being arranged in spaced relation to one another along said axis of rotation, one end of each of said contact wires being resiliently pressed against said circumferential surface of said segment holder to bias the rotational motion of said segment holder, and the other ends of said contact wires protruding outside said casing to serve as terminals; and





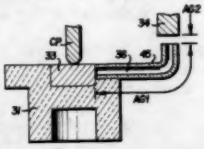
a driver connected to said segment holder for receiving an external force from the outside of said casing to rotate said segment holder against the biasing force of said contact wires, thereby to make or break electrical contact between said contact wires through said at least one conductive segment.

4,384,178

DISTRIBUTOR FOR AN INTERNAL COMBUSTION ENGINE CONTAINING AN APPARATUS FOR SUPPRESSING NOISE

Masahiko Nagai, and Minoru Yano, both of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Oct. 28, 1980, Ser. No. 201,442
Claims priority, application Japan, Jul. 29, 1980, 55-103053
Int. Cl.³ H01H *19/00*
U.S. Cl. 200—19 R **24 Claims**



1. A distributor for an internal combustion engine, comprising an apparatus for suppressing noise, said distributor comprising:

a rotor made of insulating material having a first discharging electrode and being rotated by a driving shaft of the internal combustion engine;

a plurality of stationary terminals fixed to an insulating support member, each stationary terminal provided with a second discharging electrode, said stationary terminals arranged along a circular locus with said rotor at the center of the circular locus, each of said second discharging electrodes being separated from said first discharging electrode by a discharging air gap through which a spark discharge is generated;

said apparatus for suppressing noise comprising means for preventing the random motion of combustible gaseous molecules in said discharge gap when said spark discharge is generated, said apparatus for suppressing noise comprising a tubular insulating member having a first end secured in abutment with said first discharging electrode and a second end extending into said discharge gap;

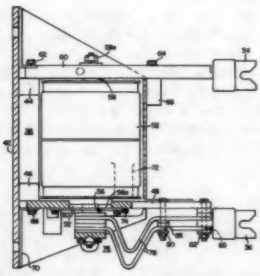
said tubular member forming a cylindrical passage in said discharge gap through which said spark discharge passes.

4,384,179

STIFF FLEXIBLE CONNECTOR FOR A CIRCUIT BREAKER OR OTHER ELECTRICAL APPARATUS

Stanislaw A. Milianowicz, Moaroeville, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Feb. 12, 1981, Ser. No. 233,721
Int. Cl.³ H01H *9/00*
U.S. Cl. 200—50 AA **22 Claims**



1. A circuit interrupter system, comprising:

circuit interrupter means including separable contacts one of which is interconnected with a movable external stem, where said stem has a given cross sectional shape;

fixed electrical terminal means;

an uninsulated external conductor of given length connected to said external stem and to said fixed electrical terminal means, said conductor having a generally flat planar portion with an opening therein which is generally of the same cross-sectional shape as said stem but slightly smaller in cross sectional area, the periphery of said opening having a slit therein which provides a peripheral tab which is offset from the plane of said flat planar portion when said opening is initially disposed around said stem to thus initially accommodate for the difference in area, said external conductor being characterized as being substantially self-supporting in the span between said movable stem and said fixed electrical terminal means but nevertheless being flexible in a cantilever manner for accommodating the movement of said movable stem; and

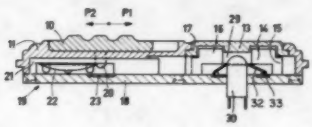
compression means disposed upon said stem in a disposition for causing said tab to substantially realign with said plane of said planar portion, the material of said tab assuming a flowed state in the region of the interface between said tab and said stem after compresssion to accommodate for the difference in area.

4,384,180

ELECTRIC SHAVER HAVING PLURAL SWITCH ASSEMBLY AND ILLUMINATED COUNTER MECHANISM

Gerald Meijer; Mosayoshi Takaoka, and Koichi Hayashi, all of Suita, Japan, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 4, 1981, Ser. No. 270,666
Claims priority, application Netherlands, Jul. 17, 1980, 8004115
Int. Cl.³ H01H *35/00*; B26B *19/02*; H01H *19/14*
U.S. Cl. 200—52 R 3 Claims



1. A battery-operated electrical appliance such as an electric shaver which includes a mechanism for counting the number of times said appliance is operated, said counting mechanism comprising a housing formed by a base plate and a spaced-apart wall; a first switch for activating the appliance positioned in said housing and having a movable contact and a fixed contact; a member provided with indicia for indicating the number of times said first switch has been operated and rotatably mounted in said housing; an actuating member for bringing said movable contact and said fixed contact of said first switch into and out of engagement with each other, said actuating member including an element for engagement with said indicating member to successively rotate the same one indicia unit each time said first switch is actuated; a second switch associated in the housing with the indicating member and having a movable contact and a fixed contact arranged to be brought into engagement after a predetermined number of successive partial rotations of said indicating member; and an indicator lamp activated by said second switch, said indicator lamp being de-activated each time the contacts of the first switch are disengaged.

4,384,181

ELECTRICAL SWITCH ASSEMBLY

Wayne R. Booden, Southfield, Mich., assignor to Microdot Inc., Darien, Conn.

Filed Jun. 25, 1981, Ser. No. 277,124
Int. Cl.³ H01H *3/16, 9/00*
U.S. Cl. 200—61.76 5 Claims

1. An improved electrical switch assembly of the type having a housing, a cover, and a spring-biased plunger, wherein the improvement comprises:

an elongated insulating housing having

a chamber opening from one end of the housing, providing an access to the chamber, and

a plurality of slots, opening from said end of the housing, longitudinally extending into the housing and opening into the chamber;

an insulating cover, overlying the access to the chamber, having

a passage communicating with the chamber;

an insulating plunger movably disposed within the chamber between two extreme longitudinal positions of the plunger, extending outwardly through the passage in the cover, having a shoulder cooperating with the cover to limit outward movement of the plunger;

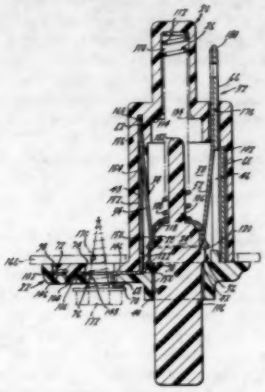
a spring disposed in the chamber of the housing, extending between the housing and plunger, biasing the plunger outwardly;

a conductive sleeve disposed in the chamber of the housing, positioned on and traveling with the plunger; and

a plurality of conductive members substantially disposed in the housing having

a first portion defining a springable tine extending into the chamber,

a second portion inserted into a slot in the housing, fixedly retained therein by the cover abutting one end of the slot, and



a third portion extending outwardly from the housing to facilitate electrical connection,

the sleeve being a bridging electrical contact with the first portion of each conductive member when the plunger is in one of the two positions, and

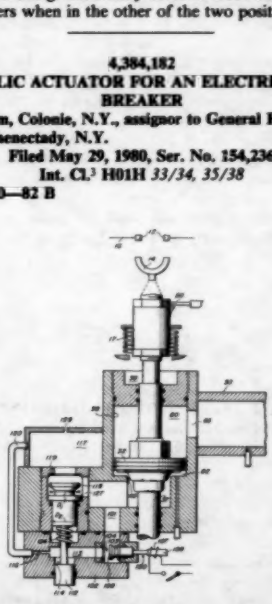
the sleeve being electrically isolated from the conductive members when in the other of the two positions.

4,384,182

HYDRAULIC ACTUATOR FOR AN ELECTRIC CIRCUIT BREAKER

Imdad Imam, Colonie, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed May 29, 1980, Ser. No. 154,236
Int. Cl.³ H01H *33/34, 35/38*
U.S. Cl. 200—82 B 3 Claims



1. In an hydraulically-actuated operating system for an electric circuit breaker:

a fluid motor comprising a cylinder and a movable piston adapted to move in an opening direction within said cylinder to open said circuit breaker and in a reverse direction

within said cylinder to close said circuit breaker, the cylinder space at one side of said piston constituting a breaker-opening space in which pressurized liquid can act on said piston to open said circuit breaker and the cylinder space at the opposite side of said piston constituting a breaker-closing space in which pressurized liquid can act on said piston to close said circuit breaker;

an accumulator freely communicating with said breaker-opening space for supplying pressurized liquid thereto during a circuit-breaker opening operation;

a normally-closed control valve located on the breaker-closing space side of said piston and openable to release liquid from said breaker-closing space so that pressurized liquid in said breaker-opening space can drive said piston in an opening direction, said control valve comprising a movable valve member that is movable from a valve-closed position to a valve-open position to open said control valve and is returnable to said valve-closed position to close said valve;

means for moving said valve member to said valve-open position comprising a pilot valve means disposed hydraulically between said breaker-closing space and a back chamber of said control valve to control flow of liquid to said back chamber of said control valve to apply liquid pressure to a shoulder member operatively attached to said movable valve member, and an impeded passage affording flow communication from said back chamber to a sump in flow communication with one side of said valve member;

means operable in response to the pressure in the breaker-closing space dropping to a predetermined level for returning said valve member to said valve-closed position following a circuit-breaker opening operation; and

an impeded passage affording communication between said accumulator and said breaker-closing space for allowing pressurized liquid to flow from said accumulator to said breaker-closing space and develop a pressure within said breaker-closing space substantially equal to accumulator pressure when said valve member is returned to said valve-closed position following a circuit-breaker opening operation, said passage being so impeded that the flow therethrough from said accumulator into said breaker-closing space during opening motion of said piston is sufficiently low during initial opening motion of said piston through a substantial portion of its opening stroke as to avoid interference with said piston motion during said initial opening motion of said piston.

4,384,183

REMOTE CONTROLLED SOUND MUTING DEVICE

Uriel Meshoulam, 321 Harvard St., Cambridge, Mass. 02139

Filed Apr. 6, 1981, Ser. No. 251,196

Int. Cl.³ H01H *35/38*

U.S. Cl. 200—82 R **12 Claims**

1. A remote controlled sound muting device for operating an audio jack switch comprising:

a housing;

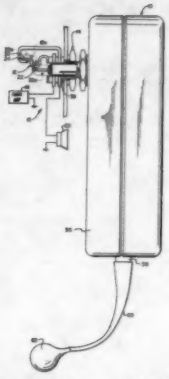
a hollow shank extending from and fixed to said housing for extending into the audio jack;

engaging means on said shank for snugly gripping the inside of the audio jack and preventing rotation of the shank;

a cam member rotatably mounted in said shank and extenting beyond the end of said shank into said audio jack to actuate the audio circuit contacts in the audio jack;

a shaft connected to said cam member;

means for driving said shaft in steps to alternately open and close said audio circuit contacts; and



remote actuator means for operating said means for driving said shaft.

4,384,184

EXPLOSION-PROOF DEVICE FOR MEASURING LIQUID LEVELS

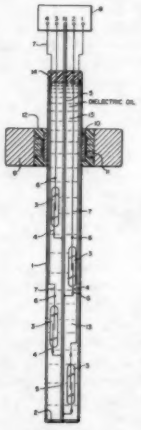
Fernando D. Q. Alvarez, Monclova, Mexico, assignor to Consejo Nacional de Ciencia y Technologia of Mexico, Mexico

Continuation-in-part of Ser. No. 958,691, Nov. 8, 1978, abandoned. This application Sep. 18, 1981, Ser. No. 303,391

Claims priority, application Mexico, Sep. 11, 1977, 171256

Int. Cl.³ H01H *35/18*; G01F *23/12*

U.S. Cl. 200—84 C **5 Claims**



1. A device for registering the level of a liquid in a tank comprising:

(a) a sealed non-magnetic tube fixed substantially vertically in said tank; said non-magnetic tube being sealed at its top and bottom ends;

(b) at least one non-magnetically biased reed switch situated at a predetermined level in said non-magnetic tube, said at least one switch being sealed in a glass vial filled with inert gas and having two terminals extending through said glass vial;

(c) a conducting pipe connected to one terminal of said at

least one reed switch and extending through said top of said non-magnetic tube;

(d) a wire connected to the other terminal of said at least one switch and extending through said top of said non-magnetic tube;

(e) floating means surrounding said non-magnetic tube, said floating means moving in a substantially vertical direction along said non-magnetic tube generally following the level of said liquid in said tank;

(f) a magnet in said floating means for activating said at least one reed switch when said floating means is at approximately the same vertical level as said switch; and

(g) a dielectric oil inside said non-magnetic tube for suppressing the formation of sparks from said at least one reed switch when it is activated.

4,384,185

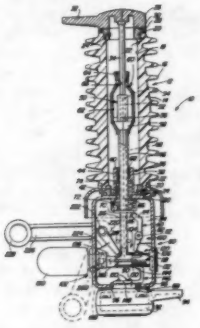
CIRCUIT INTERRUPTING DEVICE

Walter J. Hall, Evanston, and John M. Jarosz, Skokie, both of Ill., assignors to S&C Electric Company, Chicago, Ill.

Filed Feb. 17, 1981, Ser. No. 235,333

Int. Cl.³ H01H *33/70*

U.S. Cl. 200—148 R **21 Claims**



1. An improved circuit interrupting device of the type having an insulative housing surrounding a pair of normally engaged contacts, which contacts are disengageable to open a gap therebetween, and means for biasing the contacts toward disengagement; a dielectric fluid directed at an elongating arc formed in the gap being effective to extinguish the arc; wherein the improvement comprises:

two-position lever means having a first normal position for maintaining the contacts engaged against the action of the biasing means and a second position for permitting disengagement of the contacts by the biasing means;

a replaceable container of pressurized dielectric fluid having a port through which the fluid issues;

puncturable seal means on the container for normally closing the port;

means for directing fluid from the port to the gap; and

means responsive to an overcurrent through the circuit and the device for first puncturing the seal means and then moving the lever means to the second position.

4,384,186

ELECTRODE SEALING SYSTEM FOR THERMOPLASTIC TUBE

Rodney T. Burt, Tucson, Ariz., assignor to William R. Burt, Scottsdale, Ariz.

Filed Jul. 23, 1981, Ser. No. 285,996

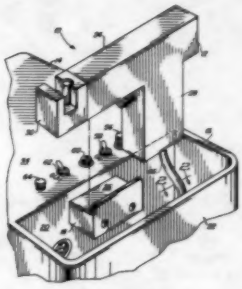
Int. Cl.³ H05B *6/54;* **B32B** *19/02*

U.S. Cl. 219—10.81 **17 Claims**

1. A sealing system having a cycle of operation, said system during each cycle adapted to hermetically seal a thermoplastic tube comprising:

tube sealing means adapted to be held in one hand, said tube sealing means having a pair of electrodes which are adapted to be forced together to squeeze the tube between the electrodes and to heat the tube between the electrodes by an RF field established between them, means for sensing when the thickness of the material of the tube between the electrodes has reached a predetermined minimum;

a first cycle-initiating switch having two conditions, the first condition being a standby condition and the second a cycle-initiating condition, said first cycle-initiation switch adapted to be placed in its cycle-initiating condition by being squeezed by a finger of a hand holding said tube sealing means;



a housing means containing an electrical power supply, an RF source, and bracket means for removably holding the tube sealing means, said bracket means placing said first initiating switch means of the tube sealing means into its second condition;

flexible electrical conductor cable means for connecting the tube sealer means to the power supply, to the RF source of the housing means; and

control means including a mode switch having two conditions and a second cycle-initiating switch having two conditions, a standby condition and a cycle-initiating condition, said mode switch in its first condition enabling the first initiating switch to control the initiation of a sealing cycle and in its second condition enabling the second initiating switch to initiate a cycle of operation.

4,384,187

FEEDBACK CONTROL SYSTEM FOR PULSED DC ARC WELDING

Dale E. Jackson, Clay, and William E. Wright, Jr., East Syracuse, both of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Apr. 9, 1981, Ser. No. 252,534

Int. Cl.³ B23K *9/09*

U.S. Cl. 219—130.51 **6 Claims**

1. Control device for a pulsed direct current (DC) are welding system for arc welding work pieces comprising:

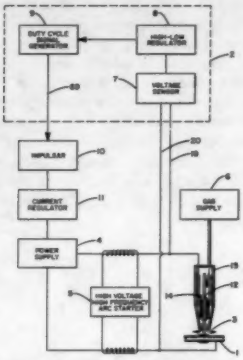
a welding electrode for supplying electrical power to the work pieces at an arc gap;

a power supply means for supplying a voltage to the welding electrode to generate a periodic series of direct current pulses which are applied across the arc gap to weld the work pieces;

a monitoring means for sensing the resistance across the arc gap as the work pieces are welded; and

pulse width adjustment means for modulating the duration

of the current pulses in response to the resistance sensed at the arc gap, while maintaining the peak magnitude of the



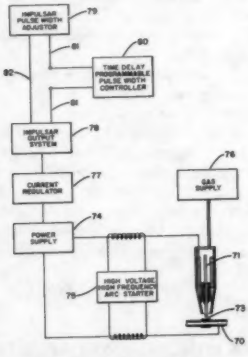
current pulses constant, to provide a constant time averaged power flow to the work pieces.

4,384,188

CONTROL SYSTEM FOR PULSED DC ARC WELDING POWER SUPPLY

William E. Wright, Jr., East Syracuse, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

Filed Apr. 9, 1981, Ser. No. 252,564
Int. Cl.³ B23K *9/09*
U.S. Cl. 219—130.51 **3 Claims**



1. A control device for the power supply of a pulsed DC arc welding system used to weld work pieces at an arc gap comprising:

a welding electrode for supplying electrical power to the work pieces;

a power supply means for supplying a voltage to the welding electrode to create a periodic series of direct current pulses which are supplied across the arc gap to weld the work pieces;

an impulsar means for providing a control signal to the power supply means, said control signal controlling the pulse width of the current pulses applied at the arc gap; and

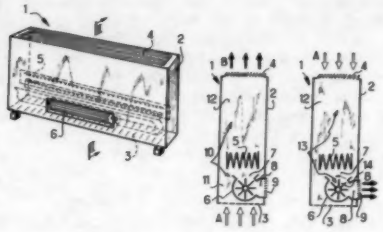
a programmable pulse width control means for automatically adjusting the impulsar control signal to provide a preselected adjustment to the pulse width of the current pulses without otherwise substantially affecting the form of the current pulses.

4,384,189

CONVECTION RADIATOR

Jacques J. Dahan, 71, rue Broca, 75013 Paris, France

Filed Oct. 16, 1979, Ser. No. 85,295
Claims priority, application France, Oct. 20, 1978, 78 29966
Int. Cl.³ H05B *1/02*
U.S. Cl. 219—364 **7 Claims**



1. A convection radiator for functioning alternatively in a natural or in an air-flow inverting forced-convection heating mode, comprising: an enclosure having a bottom wall panel, heater means located within said enclosure, fan means including motor means located within said enclosure, an upper opening in said enclosure forming an inlet for cold air during forced convection heating and an outlet for warm air during natural convection heating, lower opening means provided in a bottom region of said enclosure at least adjacent said bottom wall panel forming an outlet for warm air during forced convection heating and an inlet for cold air during natural convection heating and control system means for controlling the operation of said heater means and said fan means as a function of predetermined temperature levels, and wherein said fan means are situated near said bottom wall panel of said enclosure substantially in front of said lower opening means forming an outlet for warm air during forced convection heating and said heater means are the only heater means operative during forced convection and natural convection heating with in both cases producing their maximum heating power and are situated only above said fan means and in a bottom area of said enclosure and upwardly from the fan means in the air current path through said radiator during forced-convection heating.

4,384,190

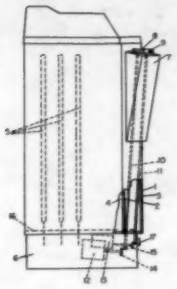
CONTROL PANEL ARRANGEMENT FOR AN ELECTRIC SAUNA HEATING UNIT

Mats O. Janson, Port, Switzerland, assignor to Tylo Sauna S.A., Biel-Bienne, Switzerland

Filed Jun. 26, 1980, Ser. No. 163,312
Claims priority, application Sweden, Sep. 25, 1979, 7907952
Int. Cl.³ A61H *33/06*; F24H *9/20*; H05B *1/02*
U.S. Cl. 219—365 **1 Claim**

1. A sauna heating unit comprising at least two upstanding casings spaced from each other and together forming an inner and an outer air space, electric heating elements arranged in said inner air space, a control panel comprising a triangular box-shaped member having a substantially upwardly facing face protruding outwardly from the upper part of the outer casing and an on-off knob and a temperature control knob mounted on the upper surface of said face, a ventilated connection box arranged in the lower part of the heating unit, regulators comprising an on-off switch and a temperature control means arranged in said connection box, a roof-shaped housing member disposed over said regulators to shield them from said inner air space and shafts extending obliquely, downwardly

through said control panel, the outer air space and said roof-shaped housing into said connection box operably connecting



the knobs on the control panel to the respective regulators so that said regulators are controlled by said knobs.

4,384,191

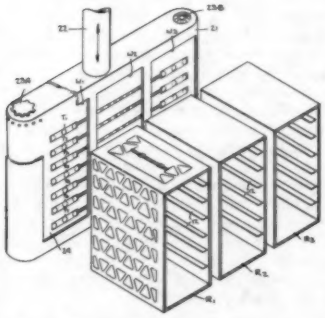
GALLEY MEAL PROCESSING SYSTEM

Raul Guibert, Los Angeles, Calif., assignor to Sunset Ltd., Los Angeles, Calif.

Continuation of Ser. No. 97,787, Nov. 27, 1979, Pat. No. 4,307,286. This application Nov. 17, 1981, Ser. No. 322,085

Int. Cl.³ H05B 1/00

U.S. Cl. 219—400 **12 Claims**



1. A system usable in aircraft for serving passengers with trays loaded with pre-cooked means that are raised in temperature from an initially cold state to a service temperature level and held at that level until it is time to serve, said system comprising:

A. a locker having a front access door;

B. a bank of open-ended racks receivable in said locker, the front ends of the racks facing the door to define a free region therebetween, each rack accommodating a stack of said trays with spaces therebetween, the correspondingly-positioned spaces in the racks lying in parallel tiers;

C. an air modulator interposed between the rear ends of the racks and the rear of the locker, said modulator being in the form of a shallow box having supported therein a continuously-driven tape whose front course faces the rear end of the racks, said tape having formed therein parallel endless trains of holes, each train lying in a plane intersecting a respective tier, the front of the box having windows therein which expose the rear ends of the racks to said train, and a heating station means to draw air from the free region and to heat this air before blowing it into the box whereby heated air is projected through the holes in the trains and projected into said air spaces to heat the loaded trays.

4,384,192

ELECTRIC HEATING ELEMENT

Herman H. Lowell, P.O. Box 3128, Silver Spring, Md. 20901, and James E. Philpot, Cookeville, Tenn., assignors to Teledyne Still-Man Manufacturing, Cookeville, Tenn., by said James E. Philpot

Filed Mar. 2, 1981, Ser. No. 239,533

Int. Cl.³ H05B 3/00

U.S. Cl. 219—468 **13 Claims**

1. An electric heating element in which the current flow is generally radial, comprising: a resistive electrical conductor configured about a central point and having a varying resistivity; said electrical conductor including radial dimensions in a first plane including said central point, and having a constant thickness perpendicular to said first plane; and wherein the resistivity of said conductor at a given radius from said central point varies with the square of the given radius to provide uniform heat distribution across the surface of the heating element.

4,384,193

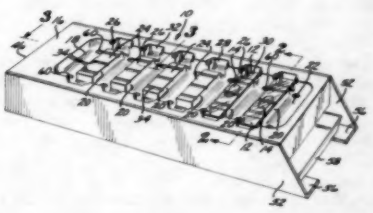
INCUBATING DEVICE FOR SPECIMEN MOUNTED ON GLASS SLIDES IN IMMUNOASSAYS

Gary S. Kledzik, Thousand Oaks; Glenn A. Wilson, Carpinteria, and Mark D. Mahone, Goleta, all of Calif., assignors to Immulok, Inc., Carpinteria, Calif.

Filed Jun. 9, 1981, Ser. No. 271,831

Int. Cl.³ H05B 3/06

U.S. Cl. 219—521 **14 Claims**



1. A device particularly adapted for warming a plurality of glass slides bearing a tissue culture, sample, specimen and the like, the device comprising:

a main body comprising heat conducting material;

a plurality of metallic heating members mounted to the main body, each heating member having a substantially horizontally disposed substantially flat heating surface adapted and dimensioned to be in direct contact with at least a major portion of the surface of one of the glass slides;

aligning means mounted in the main body for aligning the plurality of glass slides to form an array, with each glass slide in the array having at least the major portion of its surface in direct heat exchange contact with the substantially flat heating surface of a respective heating member;

a heater mounted in the main body and being adapted for heating the metallic heating members, and

sensing and control means mounted in the main body and operatively connected with the heater for sensing the temperature of the main body and controlling the heater in response thereto, thereby keeping the heating members and the main body substantially at a predetermined temperature.

4,384,194

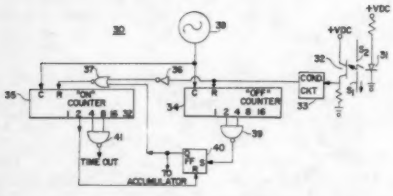
ELECTRONIC COUNTING AND CONTROL MEANS FOR DOCUMENT HANDLING UTILIZING PLURAL COUNTERS

Alan P. Jones, Levittown, Pa., assignor to Brandt, Inc., Bensalem, Pa.

Division of Ser. No. 865,316, Dec. 28, 1977, Pat. No. 4,237,378. This application Apr. 11, 1980, Ser. No. 139,424

Int. Cl.³ G06M *7/06, 3/12*

U.S. Cl. 377—8 **13 Claims**



12. Apparatus for detecting the presence of overlapping documents in a device normally feeding documents one at a time along a predetermined path and at spaced intervals so that the trailing edge of each document is spaced from the leading edge of the next succeeding document by a predetermined gap distance;

light sensing means positioned on one side of said path and means positioned on the opposite side of said path for directing light towards light sensing means whereby detection of a high level light output indicates the presence of a gap and a low level light output indicates the presence of a document;

first and second counters;

means for generating pulses representative of document movement having an output coupled to inputs of said first and second counters;

means responsive to the level of signal sensed by the light sensing means for enabling only one of said counters to accumulate said pulses and for resetting the other counter when a change in signal level occurs;

first bistable means being set responsive to a predetermined pulse count in a first one of the counters for retaining the count in said first counter even though the light sensing means detects a change in signal level;

means responsive to the set state of said bistable means for generating a document count pulse;

second bistable means being set responsive to a second predetermined count in said first counter, and means for generating an alarm responsive to the set state of said second bistable means to indicate the passage of a pair of overlapping documents.

4,384,195

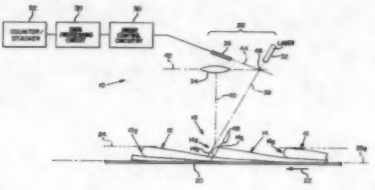
EDGE-RESPONSIVE APPARATUS FOR COUNTING CONVEYOR-TRANSPORTED ARTICLES

John C. Nosler, Eugene, Oreg., assignor to The Coe Manufacturing Company, Tigard, Oreg.

Filed Jun. 9, 1980, Ser. No. 157,657

Int. Cl.³ G06M *7/06*

U.S. Cl. 377—53 **4 Claims**



1. Apparatus for enabling the exclusive discriminatory counting, in a counting zone, of successive known-shape articles, as distinguished from other objects with other shapes, which articles are transported through the zone along a defined path, where such articles are characterized each by a leading-edge portion having a first surface expanse which extends at an oblique angle relative to said path, which first surface expanse joins with a second surface expanse that extends for at least a preselected length no less than a certain distance from said path, and where the stream of articles is characterized by an effective thickness in the zone, said apparatus comprising

electro-optical monitoring means constructed and disposed to monitor, in said counting zone, successive passing objects, said monitoring means being operable to produce a train of successive data signals each indicative of a related position, vis-a-vis the position of said path, of a surface-expanse area on a passing object, and

data-processing circuit means operatively connected to said monitoring means to receive said data signals therefrom, operable, on receiving each such signal, to determine, first, and in light of previously received data signals, whether the signal indicates the presence in the zone of an object surface expanse which extends at an oblique angle relative to said path, and if so, to determine, thereafter, from succeeding data signals, whether they collectively indicate the presence of an object surface expanse which extends no less than said certain distance from said path over said preselected length.

4,384,196

APPARATUS AND SYSTEM FOR PREPARING DATA CARDS AND MAILER FORMS AND FOR ATTACHING DATA CARDS TO RESPECTIVELY ASSOCIATED MAILER FORMS

Roger D. McCumber, Minnetonka, and LeRoy E. Gerlach, Bloomington, both of Minn., assignors to Data Card Corporation, Minnetonka, Minn.

Filed Nov. 14, 1980, Ser. No. 206,840

Int. Cl.³ G06F *15/20*

U.S. Cl. 235—375 **26 Claims**

1. A system for automatically attaching data cards authorized to be issued for predetermined accounts and coded with predetermined card account information, to respectively associated carrier forms having printed thereon corresponding, predetermined form account information, said system including means for operative connection to a common data base containing the account information for both the cards and the forms for a plurality of accounts, and comprising:

means for deriving the associated, predetermined card account information and predetermined form account information from the common data base in predetermined

timed relationship for each account, and in individual succession for plural said accounts;

means for attaching data cards having card account information coded thereon to carrier forms having corresponding form account information printed thereon;

means for coding blank data cards in accordance with predetermined card account information supplied thereto;

means for printing predetermined account information on blank carrier forms, in individual succession corresponding to a succession of plural accounts for which data cards are authorized to be issued;

means for supplying coded data cards to said attaching means, in individual succession as to the data cards authorized to be issued for each of a succession of plural accounts;

said deriving means including means for supplying the predetermined card account information to said coding means in accordance with the number of data cards authorized to be issued for a given account, and for supplying, in timed relationship, synchronized with the supply of the predetermined card account information to said coding means, the predetermined form account information for the given account to said printing means; and

said printing means including means for supplying successive printed carrier forms to said attaching means in timed relationship synchronized with the successive supply of coded data cards for the respectively corresponding accounts, to said attaching means by said means for supplying coded data cards;

said attaching means including means for attaching the correct number of coded data cards to the respectively corresponding printed carrier form, in individual succession for the successive plural accounts.

4,384,197

MAGNETIC DETECTION DEVICE FOR USE IN BANK NOTE DISCRIMINATING APPARATUS

Moriatsu Kawakami, Tokyo, Japan, assignor to Laurel Bank Machine Co., Ltd., Tokyo, Japan

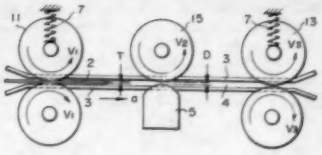
Filed Jun. 8, 1981, Ser. No. 271,111

Claims priority, application Japan, Jun. 12, 1980, 55/82294[U]

Int. Cl.³ G06K *13/05*

U.S. Cl. 235—485 **5 Claims**

1. A magnetic detection device to be used in a bank note discriminating apparatus, comprising a conveyer for passing bank notes one by one along a bank note passage at a predetermined speed, a magnetic detecting head facing to said passage along which bank notes are conveyed by said conveyer, and a positioning roller opposing to said magnetic detecting head and spaced from said magnetic detecting head by a gap greater than the thickness of the passing bank notes, the circumferential speed of said positioning roller being substantially equal to the conveying speed of said conveyer.



4,384,198

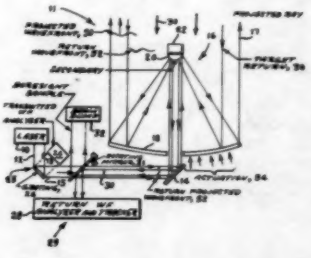
TIME-SHARED APERTURE DEVICE

Robert P. Williamson, Woodside, Calif., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Feb. 9, 1982, Ser. No. 347,227

Int. Cl.³ G01J *1/20*

U.S. Cl. 250—203 R **9 Claims**



1. A time-shared aperture device for boresight, tracking, and figure sensing comprising:

means for emitting a high power laser beam;

means optically aligned with said laser beam emitting means for analyzing a sample of said laser beam;

means optically aligned with said laser beam emitting means for analyzing a return of said laser beam reflected from a target;

an optical train for guiding said laser beam and said target return;

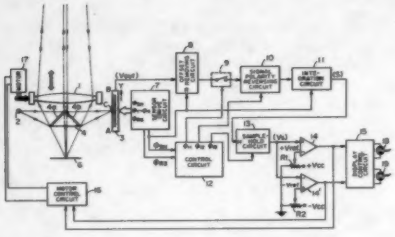
a beam expander for operably receiving said laser beam from said optical train and transmitting said laser beam to said target, said expander receiving said target return and transmitting said return to said optical train; and

means for sensing jitter of said laser beam.

4,384,199
INCIDENT POSITION DETECTOR FOR RADIATION BEAM

Yasuo Ogino; Yukichi Niwa; Mitsutoshi Ohwada, all of Yokohama; Kazuo Tanaka, Tokyo, and Noboru Koumura, Narashino, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 24, 1980, Ser. No. 190,454
Claims priority, application Japan, Sep. 27, 1979, 54-124537; Mar. 7, 1980, 55-28735; Mar. 12, 1980, 55-31235; Jun. 20, 1980, 55-83586
Int. Cl.³ G01J 1/36
U.S. Cl. 250—204 51 Claims



1. A device for detecting a position of a substantial center of gravity of a distribution pattern of a radiation on a predetermined plane, comprising:

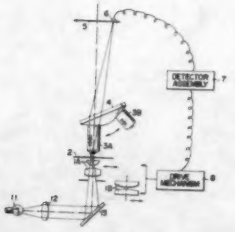
(a) scanning means for scanning said distribution pattern of the radiation on said plane, said scanning means generating a time-sequential output signal representing the radiation distribution pattern on said plane; and

(b) circuit means for detecting the position of the substantial center of gravity of said radiation distribution pattern on said plane on the basis of the time-sequential output signal from said scanning means, said circuit means dividing the time-sequential output signal into predetermined signal sections and generating an output which varies with the change in the position of the substantial center of gravity of said radiation distribution pattern on said plane.

4,384,200
APPARATUS FOR CHANGING ILLUMINATION OPTICS OF A MICROSCOPE

Akio Taira, Hachioji, Japan, assignor to Olympus Optical Company Ltd., Japan

Filed Mar. 5, 1981, Ser. No. 240,950
Claims priority, application Japan, Jun. 13, 1980, 55-79841
Int. Cl.³ G01J 1/32
U.S. Cl. 250—205 9 Claims



1. An apparatus for changing the illumination optics of a microscope which includes a plurality of objective lenses having different values of magnification and a plurality of illumination optics lenses having different values of magnification in which said illumination optics lenses are changed in respect to a particular one of said objective lenses which is disposed in an observation optical path of said microscope; the apparatus comprising:

at least one photometric, light receiving element disposed in a marginal area of an image field of that one of said objective lenses which is disposed in said observation optical path;

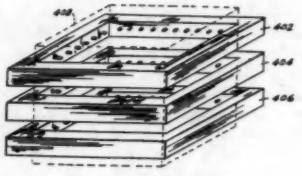
detecting means for determining an output from said photometric element as said illumination optics lenses are sequentially changed and for determining a matching condition between said objective lens disposed in said observation optical path and said illumination optics lenses in accordance with the magnitude of an output of said photometric element; and

drive means responsive to an output from said detecting means for selecting that one of said illumination optics lenses which represents a best match with said objective lens disposed in said observation optical path and for bringing such illumination optics into cooperating position with the objective lens.

4,384,201
THREE-DIMENSIONAL PROTECTIVE INTERLOCK APPARATUS

Arthur B. Carroll, St. Joseph, Fla.; Vladeta D. Lazarevich, Bondville, and Mark R. Gardner, Champaign, both of Ill., assignors to Carroll Manufacturing Corporation, Champaign, Ill.

Division of Ser. No. 899,260, Apr. 24, 1978, Pat. No. 4,267,443.
This application Jan. 14, 1981, Ser. No. 225,184
Int. Cl.³ G01V 9/04
U.S. Cl. 250—221 8 Claims



1. In a control system for providing a protective interlock, the combination comprising:

a plurality of light sources and a plurality of photosensitive devices for defining a set of light beams,

means mounting said light sources and said photosensitive devices in spaced relationship with apparatus to be interlocked with a plurality of said light beams defining a protective three-dimensional volume,

means responsive to interruption of at least two of said beams for inhibiting operation of said apparatus to be interlocked.

4,384,202
TRACK CONTROLLER FOR A DOCUMENT PROCESSOR

Harold A. Fasig, Plymouth, Mich., assignor to Burroughs Corporation, Detroit, Mich.

Filed Dec. 11, 1980, Ser. No. 215,266
Int. Cl.³ G01V 9/04
U.S. Cl. 250—223 R 12 Claims

1. In a track controller for a document processor, means comprising:

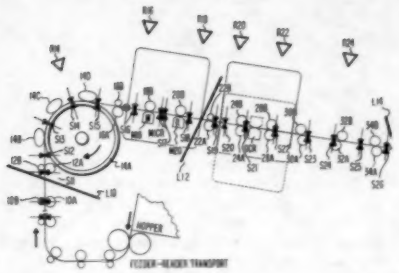
a plurality of sensors spaced in succession along a document track to detect the passage of the trailing edges of documents moving along the track and to provide signals denoting said passage;

means, including timer means, responsive to said signals for locating and indicating jam conditions in the document

track, where the existence of jam conditions is determined by measuring the time lapse between the passage of the trailing edge of each document past a succession of sensors and determining when any time period exceeds a prescribed value;

means identifying each sensor by number and providing a plurality of first words, each of which identifies the highest sensor number in a section of track;

means for identifying the address of timer means indicating



jam conditions and providing a second word indicating said address;

means for comparing the second word successively with each of the first words until a match is made, thereby identifying a section of track in which the jam condition is located; and

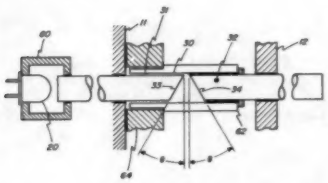
means for providing signals to stop the section of track in which the jam condition is located, clear the other sections of track and close the track down in an orderly fashion.

4,384,203

OPTICAL FIBER ANGLE POSITION SENSOR

Robert C. Wells, Endwell, N.Y., assignor to General Electric Company, Binghamton, N.Y.

Filed May 18, 1981, Ser. No. 264,271
Int. Cl.³ G02B 5/14
U.S. Cl. 250—227 **7 Claims**



1. Apparatus for determining the position of a first element relative to a second element, one of said first and second elements being rotationally movable relative the other, comprising:

a source of electromagnetic radiation, the source being adapted to be fixedly secured to said first element; and

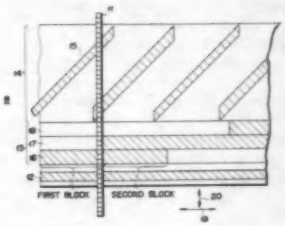
an optical fiber cable including first and second elongated portions in coaxial alignment and closely axially fixed relative to one another; the first cable portion being fixedly secured to said source and adapted to receive and transmit therethrough radiation from said source; the second cable portion being adapted to be fixedly secured to said second element; one of said first and second cable portions being rotatable about its longitudinal axis relative to the other as a function of rotational movement of the element to which it is secured; the respective cable portions having interface surfaces with face angles of approximately equivalent magnitude; whereby, when the interface surfaces are parallel, a major portion of the radiation transmitted through and exiting the first cable portion will be received by and transmitted through the second cable portion, and when the interface surfaces are non-parallel, radiation exiting the first cable portion will be reflected at the interface surface of the second cable portion in varying amounts as a function of angular displacement from parallel of the interface surface of the second cable portion with respect to the interface surface of the first cable portion, maximal reflection occurring when the interface surfaces are rotated 180° from the true parallel position, thereby resulting in attenuation of radiation being transmitted through the cable.

4,384,204

ABSOLUTE ENCODER

Hiroshi Tamaki, Tokyo; Fumio Ohtomo, Kawagoe, and Kazuaki Kimura, Tokyo, all of Japan, assignors to Tokyo Kogaku Kikai K.K., Tokyo, Japan

Filed Jun. 10, 1981, Ser. No. 272,265
Claims priority, application Japan, Jun. 17, 1980, 55/81699
Int. Cl.³ G01B 5/34
U.S. Cl. 250—237 G **13 Claims**



1. An absolute encoder having:

a code plate with a plurality of blocks in the direction of its displacement, said code plate having at least, in each block, both address data representing an address of the block and a fine reading track representing a fine displacement within the block;

a sensor array in which a plurality of sensor elements are arranged in a direction crossing the direction of displacement of the code plate and which is so arranged to detect data of the code plate; and

an arithmetic unit for processing the data of the code plate detected by the sensor array,

characterized in that fine reading patterns varying in a direction crossing the direction of displacement of the code plate are formed in the fine reading track.

4,384,205

NEUTRON METHOD AND APPARATUS FOR DETERMINING TOTAL CROSS-SECTION

Charles Flaum, Danbury, Conn., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed Nov. 5, 1980, Ser. No. 204,094
Int. Cl.³ G01V 5/00
U.S. Cl. 250—265 **20 Claims**

1. A method for quantitatively determining the macroscopic neutron absorption cross-section of a geological formation traversed by a borehole, wherein said method comprises the steps of:

a. passing a logging sonde through said borehole while continuously irradiating said formation with a continuous source of neutrons;

b. detecting an epithermal neutron flux with a first detector

carried by said sonde and spaced from said source of neutrons;

c. detecting a thermal neutron flux with a second detector carried by said sonde also spaced from said source of neutrons;

d. generating electrical signals indicative of said detected epithermal neutron flux and of said thermal neutron flux; and

e. combining said electrical signals indicative of said detected epithermal neutron flux and of said thermal neutron flux to generate a signal representative of the macroscopic neutron absorption cross-section of said geological formation according to the relationship:

$$SIGMA = A + B \log (FE) - C \log (FT)$$

where SIGMA is the macroscopic neutron absorption cross-section of said material, (FE) is the signal indicative of epithermal neutrons, (FT) is the signal indicative of thermal neutrons, and A,B, and C are constants.

4,384,206

PROCESS FOR DETECTION OF PARTICULAR QUALITY PROPERTIES IN INDIVIDUAL ARTICLES OF FOOD

Ole-Christian Bjarno, Holte, Denmark, assignor to Slagteriernes Forskningsinstitut, Roskilde, Denmark

PCT No. PCT/DK80/00028, § 371 Date Jan. 13, 1981, § 102(e) Date Jan. 13, 1981, PCT Pub. No. WO80/02597, PCT Pub. Date Nov. 27, 1980

PCT Filed May 16, 1980, Ser. No. 232,038

Claims priority, application Denmark, May 16, 1979, 2029/79

Int. Cl.³ G01N *33/12, 21/25*

U.S. Cl. 250—339 **5 Claims**

1. A method for detecting boar taint in individual carcases of uncastrated boars or parts thereof, comprising determining, by I.R. transmission spectrophotometry, and I.R. spectral parameter of a sample derived from a carcase of uncastrated boars or parts thereof, the I.R. spectral parameter being either (1) the I.R. absorption in the wavelength range of 1275–1335 cm^{-1} or (2) the relation between the I.R. absorption at two different wavelengths in the range of 1275–1325 cm^{-1} in the I.R. spectrum, said spectral parameter having a statistical relationship to boar taint on a fat sample from the individual carcase or part thereof, and thereafter estimating the boar taint from a predetermined relation between the I.R. spectral parameter and the boar taint.

4,384,207

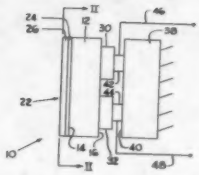
DIFFERENTIAL PYROELECTRIC DETECTOR

Alan P. Doctor, Ormond Beach, Fla., assignor to Eltec Instruments, Inc., Daytona Beach, Fla.

Filed Jan. 23, 1981, Ser. No. 228,801

Int. Cl.³ G01J *1/00*

U.S. Cl. 250—349 **10 Claims**



1. A pyroelectric detector comprising:

(a) a body of pyroelectric material having a first surface for receiving radiation and a second surface;

(b) a relatively thin coating on said first surface of material which is radiation absorbing and transmitting and which is electrically conducting;

(c) a pair of areas in spaced-apart relation on said second surface, each of said areas being of radiation reflecting and electrically conducting material, each being relatively thicker than said coating on said first surface;

(d) a first heat sensitive charge generator defined by one of said areas, the portion of said coating in registry with said one area and the region of said body of pyroelectric material therebetween; and

(e) a second heat sensitive charge generator defined by the other of said areas, the portion of said coating in registry with said other area and the region of said body of pyroelectric material therebetween;

(f) whereby when radiation is absorbed by either of said heat sensitive charge generators an electric current flows in a circuit connected to said areas thereby providing an indication of said radiation.

4,384,208

ELECTRON LENS EQUIPPED WITH THREE MAGNETIC POLE PIECES

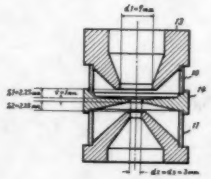
Katsushige Tsuno, Tokyo, Japan, assignor to Jeol Ltd., Tokyo, Japan

Filed Dec. 23, 1980, Ser. No. 220,183

Claims priority, application Japan, Dec. 28, 1979, 54-172796

Int. Cl.³ G01N *23/00*

U.S. Cl. 250—396 ML **5 Claims**



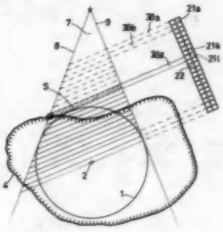
1. An electron lens consisting of upper, middle and lower magnetic pole pieces installed inside a yoke enveloping two excitation coils so that magnetic fields are generated with opposite and same strength excitation in the two gaps respectively between said three magnetic pole pieces, said middle and lower pole pieces have bores of substantially equal diameter and the bore diameter of said upper pole piece being 1.5 to 5 times larger than the bore diameters of the middle and lower pole pieces.

4,384,209

METHOD OF AND DEVICE FOR DETERMINING THE CONTOUR OF A BODY BY MEANS OF RADIATION SCATTERED BY THE BODY

Wolfgang Wagner, Hamburg, and Geoffrey Harding, Reilingen, both of Fed. Rep. of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 30, 1980, Ser. No. 164,109
Claims priority, application Fed. Rep. of Germany, Jun. 30, 1979, 292645
Int. Cl.³ A61B 6/00
U.S. Cl. 378—14 17 Claims



1. A method of determining contour points of a body in a positioning zone of an examination plane comprising the steps of:

completely irradiating an examination zone which is enclosed within the positioning zone from a plurality of different directions with a flat beam of X-rays which lies in the examination plane and is fan-shaped therein;

for each of the plurality of directions, measuring radiation which is scattered out of the fan beam by the body along a plurality of measuring paths, which paths intersect the fan beam, cover at least one-half of the positioning zone adjacent a center situated therein, and do not overlap each other within the positioning zone;

for each of the plurality of directions, selecting, from among the plurality of measuring paths, a path along which a predetermined minimum amount of scattered radiation has been measured and which is furthest from the center;

recording the position of the segments of the selected paths which are within the fan-shaped beam; and

determining the points of intersections of the recorded segment positions with each of a plurality of straight lines which pass through the center and selecting as a contour the point of intersection on each line which is closest to the center.

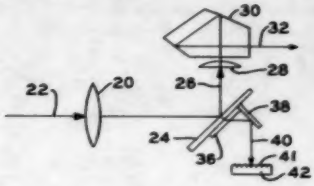
4,384,210

SPATIAL LOW PASS FILTER FOR RANGE FINDING SYSTEMS

Norman L. Stauffer, Englewood, Colo., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Feb. 6, 1981, Ser. No. 32,106
Int. Cl.³ G02B 5/18
U.S. Cl. 250—550 15 Claims

1. Apparatus for use in a range determination system having a primary lens for directing radiation from a remote object along a path to radiation responsive means operable in accordance with the distribution of the radiation to determine the range to the object, the radiation distribution containing high spatial frequency components which may cause undesirable operation of the system comprising:



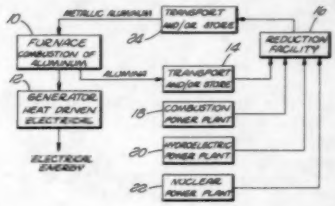
radiation filter means mounted in the path and operable to suppress the high spatial frequency components.

4,384,211

ALUMINUM CYCLE ENERGY SYSTEM

Berry Campbell, 444 N. Alta Vista, Monrovia, Calif. 91016

Filed Dec. 8, 1980, Ser. No. 213,978
Int. Cl.³ H01M 8/20
U.S. Cl. 290—1 R 8 Claims



1. A closed-loop process for managing electrical energy in displaced time or space, comprising the steps of:

at a desired location or time for the provision of energy, igniting metallic electrolytically produced aluminum to combustion so as to produce heat of combustion and aluminum oxides;

converting said heat of combustion from said metallic electrolytically produced aluminum to electrical energy for convenient use at said desired location or time; and

at a different location or at a subsequent time, utilizing conveniently available electrical energy to electrolytically reduce said aluminum oxides to metallic aluminum for storage or transportation to a desired location or time of convenient use.

4,384,212

APPARATUS FOR STORING THE ENERGY OF OCEAN WAVES

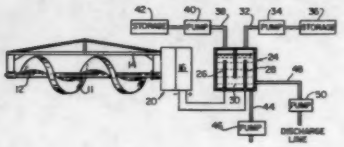
James M. Lapeyre, New Orleans, La., assignor to The Laitram Corporation, New Orleans, La.

Continuation of Ser. No. 687,678, May 19, 1976, which is a continuation of Ser. No. 373,442, Jun. 25, 1973, Pat. No. 3,818,704, which is a continuation-in-part of Ser. No. 148,775, Jun. 1, 1971, abandoned. This application May 8, 1980, Ser. No. 147,578
The portion of the term of this patent subsequent to Jun. 25, 1991, has been disclaimed.
Int. Cl.³ F03B 13/12
U.S. Cl. 290—53 13 Claims

1. Apparatus for manufacturing hydrogen gas from sea water, said apparatus comprising in combination:

means for converting the motion of gravity waves in sea water to electrical energy in the form of DC current and including an elongated buoyant member curved about an

axis to form a helix of a predetermined pitch, and means for mounting said helical buoyant member for rotation about said axis, said means for mounting including means for suspending said helical buoyant member so as to enable said member to float partially submerged with respect to the crests of said gravity waves, with said axis disposed



at an acute angle with respect to the approximate mean direction of propagation of said waves such that the distance between wave crests with respect to said axis is substantially equal to said pitch, and

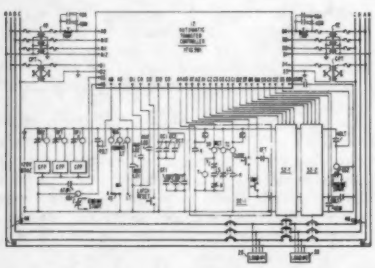
means for electrolyzing a quantity of sea water using said electrical energy, to form hydrogen gas.

4,384,213

AUTOMATIC TRANSFER CONTROL DEVICE

George F. Bogel, Pittsburgh, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Continuation of Ser. No. 706,423, Jul. 19, 1976, abandoned. This application Jul. 24, 1978, Ser. No. 927,307
Int. Cl.³ H02J 9/00
U.S. Cl. 307—64 6 Claims



1. Automatic transfer control apparatus for selectively energizing an electrical distribution network from a plurality of electrical power sources, comprising:

a plurality of source sensing means for sensing electrical parameters on said electrical power sources;

means for generating output control signals for associated circuit interrupters to selectively connect and disconnect said electrical power sources to said distribution network;

means connected to said source sensing means for generating activating signals to said output control signal generating means in response to electrical parameters on said electrical power sources;

means for indicating the activating signals being supplied to said output control signal generating means;

means connected to said source sensing means for simulating abnormal electrical parameters on at least one of said sources; and

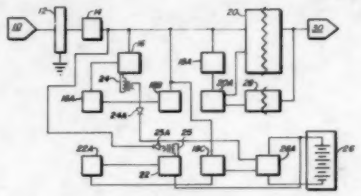
means for inhibiting the generation of said output control signals when said simulation means are activated.

4,384,214

NON-INTERRUPTING POWER SUPPLIES FOR LOADS OF LESS THAN 500 WATTS

Robert G. Crick, San Diego, Calif.; Michael J. Dewey, Tempe, and Larry P. Jamison, Mesa, both of Ariz., assignors to Integrated Switching Supplies, Inc., Scottsdale, Ariz.

Filed Aug. 3, 1981, Ser. No. 289,827
Int. Cl.³ H01F 1/00
U.S. Cl. 307—66 7 Claims



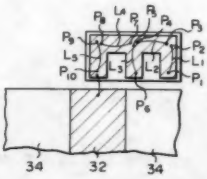
1. A non-interrupting power supply for supplying DC power to a load, comprising: input means adapted to be coupled to a source of AC power; first means coupled to said input means and to said load for converting said AC power to DC power for utilization by said load; second means for storing DC power; charging means coupled to said input means and to said second means for charging said second means; third means coupled to said input means and to said second means for sensing the failure of said source of AC power; fourth means coupled to said first means and to said second means and responsive to said third means for supplying power from said second means to said first means upon failure of said source of AC power; and regulating means coupled to said load and said first means for regulating the DC-power produced by said first means in accordance with load requirement, said regulating means comprises: a voltage regulator coupled to the output of said first means; a variable pulse width circuit having an output coupled to said first means; and an optoelectronic isolator for coupling the output of said voltage regulator to an input of said variable pulse width circuit.

4,384,215

CAPACITOR ELEMENT

Yutaka Hirano, Atsugi; Masahiro Hayakawa, Tokyo; Hideo Ashida, Yokohama, and Hideki Ikuta, Kawasaki, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Jul. 21, 1981, Ser. No. 285,472
Claims priority, application Japan, Jul. 21, 1980, 55-99684
Int. Cl.³ H02M 3/06
U.S. Cl. 307—109 8 Claims



1. A capacitor element for receiving electric signals having a minimum wavelength of λ_0, comprising:

a dielectric material layer having a dielectric constant ϵ_r and having first and second main surfaces;

first and second conductive layers covering said first and second main surfaces of said dielectric material layer; and

one or more conductive wires electrically connecting a plurality of points on said first conductive layer, each of said one or more conductive wires connecting two points

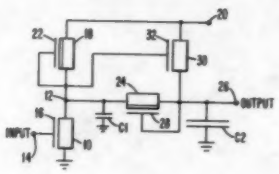
separated by a distance less than $\lambda_0/2\epsilon_r$, each of said one or more conductive wires having a middle portion which is separated from said first conductive layer.

4,384,216

CONTROLLED POWER PERFORMANCE DRIVER CIRCUIT

Wilbur D. Pricer, Burlington, Vt., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 22, 1980, Ser. No. 180,242
Int. Cl.³ H03K 5/12
U.S. Cl. 307—270 15 Claims



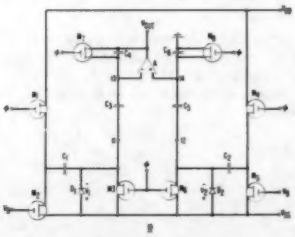
1. A circuit comprising;
a driver device coupled to an internal node,
a first depletion mode transistor coupled between said internal node and a power supply terminal and controlled by said internal node,
a second depletion mode transistor coupled between said internal node and an output node, said second transistor arranged to provide a low impedance value when a voltage on said output node is higher than the voltage on said internal node, and
an active device coupled between said power supply terminal and said output node and controlled by said internal node.

4,384,217

TEMPERATURE STABILIZED VOLTAGE REFERENCE CIRCUIT

Yannis Tsividis, New York, N.Y., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 11, 1981, Ser. No. 262,461
Int. Cl.³ H02J 1/04; G05F 1/46, 1/58
U.S. Cl. 307—297 7 Claims



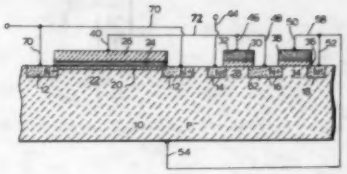
1. A voltage reference circuit comprising first and second PN junction diodes (D_1; D_2), CHARACTERIZED IN THAT each said diode is separately connected to a different clocked current source arrangement (C_1, M_1, M_2, M_3; C_2, M_4, M_5, M_6) for supplying current in the forward-bias diode direction periodically through the corresponding diode, and each said diode (D_1; D_2) connected to a separate terminal (11; 12) of a weighted difference amplifier (A, C_3, C_4, C_5, C_6) to generate a predetermined weighted difference ($aV_1 - bV_2$) of the forward voltage drops (V_1; V_2) across the diodes (D_1; D_2).

4,384,218

SUBSTRATE BIAS GENERATOR

Kazuhiro Shimotori; Toshio Ichiyama, and Yoichi Tobita, all of Itami, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 23, 1980, Ser. No. 171,420
Claims priority, application Japan, Jul. 23, 1979, 54-93918
Int. Cl.³ H03K 3/353, 3/01; H01L 29/78, 27/02
U.S. Cl. 307—304 1 Claim



1. A substrate bias generator for generating a potential in a semiconductor substrate, comprising: a semiconductor substrate of a first conductivity type and including a pair of first and second main faces which are opposite to each other; a first, a second and a third semiconductor region of a second conductivity type disposed at predetermined intervals on said first main face of said semiconductor substrate; a first MOSFET disposed on said first main face of said semiconductor substrate and including a source region formed of said first semiconductor region, a drain region formed of said second semiconductor region and a gate electrode; a second MOSFET disposed on said first main face of said semiconductor substrate and including a source region formed of said second semiconductor region, a drain region formed of said third semiconductor region, and a gate electrode; an MOS capacitor disposed on said first main face of said semiconductor substrate and including a first electrode formed of a semiconductor region of said second conductivity type and disposed on said first main face of said semiconductor substrate, and including a second electrode disposed on the last mentioned semiconductor region through an electrically insulating film; another electrode laid on said second main face of said semiconductor substrate, said first electrode of said MOS capacitor being supplied with positive pulses; a first electric lead for connecting said second electrode of said MOS capacitor to said gate electrode and drain region of said first MOSFET; a second electric lead for connecting said source region of said first MOSFET to ground; and a third electric lead for electrically connecting said gate electrode and drain region of said second MOSFET to said electrode on said second main face of said semiconductor substrate.

4,384,219

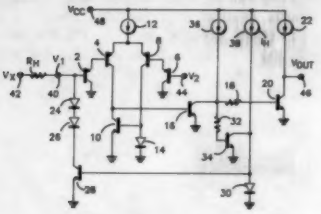
VOLTAGE COMPARATOR HYSTERESIS CONTROL CIRCUIT

William F. Davis, Tempe, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 29, 1980, Ser. No. 220,613
Int. Cl.³ H03K 5/24, 5/153
U.S. Cl. 307—362 17 Claims

1. A voltage comparator circuit for generating output transistions when an unknown voltage passes through a threshold voltage, comprising:
comparing means having a first input coupled to said unknown voltage and a second input coupled to said threshold voltage and having an output at which said transitions occur: and
hysteresis control means coupled to said second input and to said output for permitting a hysteresis voltage to be applied to said second input only when said unknown volt-

age exceeds said threshold voltage and said threshold voltage exceeds a predetermined value, said hysteresis



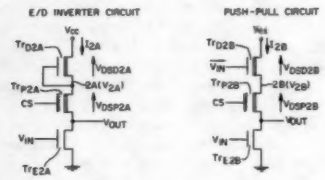
voltage being eliminated when said threshold voltage does not exceed said predetermined value.

4,384,220

MOS TRANSISTOR CIRCUIT WITH A POWER-DOWN FUNCTION

Makoto Segawa, Yokohama, and Shoji Arizumi, Tokyo, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kanagawa, Japan

Filed Jan. 29, 1981, Ser. No. 229,746
Claims priority, application Japan, Feb. 6, 1980, 55-13302
Int. Cl.³ H03K *17/687, 19/094, 19/20*
U.S. Cl. 307—450 **11 Claims**



1. A transistor circuit having a first input terminal, a second input terminal, and a circuit enable terminal, said circuit comprising:

(a) a depletion-mode MOS transistor having a source, a drain, and a gate, the latter gate being connected to said first input terminal;

(b) an enhancement-mode MOS transistor having a drain, a source, and a gate, the latter gate being connected to said second input terminal; and

(c) an MOS transistor connected between said depletion-mode transistor and said enhancement-mode transistor for providing a power-down function, said power-down function transistor having a threshold voltage of approximately zero volts and also having a drain connected to said source of said depletion-mode MOS transistor, a source connected to said drain of said enhancement-mode transistor, and a gate connected to said circuit enable terminal.

4,384,221

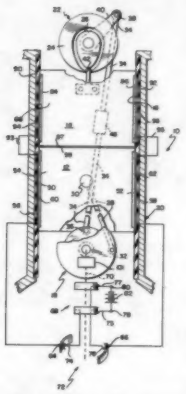
MOTOR

Ernest B. Brandly, 900 S. A, Suite 314, Richmond, Ind. 47374

Filed Mar. 19, 1981, Ser. No. 245,264
Int. Cl.³ H02K *41/00*
U.S. Cl. 310—24 **7 Claims**

1. An electric motor comprising first and second electromagnets, means for relatively reciprocably mounting the electromagnets for movement relatively toward and away from each other, the mounting means including a first crankshaft, means for coupling the first crankshaft to the first electromagnet, rotation of the first crankshaft accompanying reciprocation of the first electromagnet, and means for switching a supply of electric power to the electromagnets, the switching means causing current to flow in the electromagnets such that they are repelled away from each other as they reach their smallest spacing and as the first crankshaft reaches approximately 90° past top dead center of the positioning of the first electromagnet.

2. An electric motor comprising first and second electromagnets, means for relatively reciprocably mounting the electromagnets for movement relatively toward and away from each other, the mounting means including a first crankshaft,



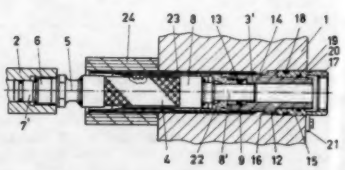
and means for switching a supply of electric power to the electromagnets, the switching means causing current to flow in the electromagnets such that they are repelled away from each other as they reach their smallest spacing, the mounting means further including a first connecting rod and a first pin for coupling the first electromagnet to the first crankshaft, a second crankshaft, a second connecting rod and a second pin for coupling the second electromagnet to the second crankshaft, and means for coupling the second crankshaft to the first to provide synchronous motion of the first and second electromagnets.

4,384,222

FLEXIBLE, ELECTRICALLY INSULATING PIPE CONNECTION

Willibald Zerlik, Birr, Switzerland, assignor to BBC Brown, Boveri & Company, Limited, Baden, Switzerland

Filed Feb. 18, 1981, Ser. No. 235,640
Claims priority, application European Pat. Off., Feb. 3, 1980, 80200187.5
Int. Cl.³ H02K *1/32*
U.S. Cl. 310—61 **18 Claims**



1. In an electrical machine having a water cooled rotor including a coil end and a water distribution chamber having a wall including a bore, a flexible electrically insulating pipe

connection between said wall and said coil end, said connection comprising:

an insulating link projecting at least partially into said bore of said wall of said water distribution chamber at the distribution chamber end thereof; and

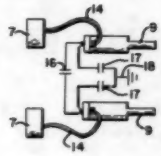
a flexible link communicating with the coil end of said insulating link and also communicating with said coil.

4,384,223

RADIO-FREQUENCY INTERFERENCE SUPPRESSING SYSTEM FOR PERMANENT MAGNET FIELD MOTOR

Edward J. Zeit, St. Marys, Pa., assignor to The Stackpole Corporation, St. Marys, Pa.

Filed Apr. 15, 1981, Ser. No. 254,257
Int. Cl.³ H02K 11/00
U.S. Cl. 310—68 R 4 Claims



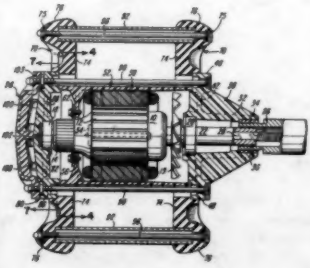
1. A radio-frequency interference suppressing system for inside a permanent magnet field motor case, comprising a pair of commutator brushes, a pair of power input terminals electrically connected with said brushes, a capacitor electrically connected across the terminals, a pair of capacitors each electrically connected to a different one of said terminals, and a resilient metal grounding strip electrically connected with said pair of capacitors for pressing against the inside of the motor case, an insulating member provided with laterally spaced openings receiving the inner ends of said terminals and supported thereby, one end of said grounding strip being rigidly attached to said insulating member, and said strip extending from the insulating member in the same general direction as said terminals.

4,384,224

DRIVE UNIT FOR FLEXSHAFT VIBRATORS

Clem Spitler, Lakeview, and Ralph Farkas, Wilmington, both of Ohio, assignors to Koehring Company, Brookfield, Wis.

Continuation of Ser. No. 38,314, May 11, 1979, abandoned. This application Sep. 21, 1981, Ser. No. 303,924
Int. Cl.³ H02K 7/10
U.S. Cl. 310—81 15 Claims



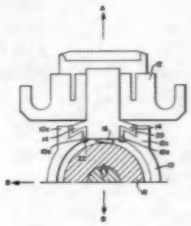
1. A drive motor unit for an internal vibrator or like device comprising a tubular shell of non-conductive material each end of which has a separate cover element of non-conductive material, a cylindrical structure defining a field assembly having in electrically conductive connection therewith brush means and means for coupling thereto a source of power, said field assembly having a releasable slip-fit mount within and connection to an inner portion of said shell, an armature assembly within said field assembly having in electrically conductive relation thereto commutator means, to which said brush means are applied, said armature assembly having in connection therewith shaft means, said shaft means being supported and capped at one end by one of said cover elements, the other end of said shaft means having an axial extension defined by an electrically non-conductive element mounted to extend said shaft means within the other of said cover elements, said element defining an axial extension being effective on coupling of a source of power to said field assembly to block flow therethrough from said shaft means of electrical energy and said electrically non-conductive element forming an axial extension of said shaft means providing the output from said shaft means and said motor.

4,384,225

CHARGING GENERATOR FOR MOTOR VEHICLE

Yoshiyuki Iwaki, Himeji, and Hitoshi Goto, Kakogawa, both of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 8, 1981, Ser. No. 281,507
Claims priority, application Japan, Jul. 10, 1980, 55-97795[U]
Int. Cl.³ H02K 5/10
U.S. Cl. 310—88 5 Claims



1. A charging generator for a motor vehicle comprising a slip ring, a cylindrical cover provided on the circumferential surface thereof and having an axially extending opening thereon, and covering an outer periphery of said slip ring, a brush holder for slidably holding a brush therein, said brush holder having one end inserted into said opening and slightly spaced from both side walls of said opening with said brush slidably contacting said slip ring, said cover and said brush holder having on opposed portions thereof protrusions forming therebetween a labyrinth on each side of said brush holder, and a sealing material filling said labyrinth, said sealing material being a sealing material taken from the group consisting of grease, silicone resin and epoxy resin.

4,384,226

SMALL-SIZED ELECTRIC MOTOR

Kazuo Sato, and Masafumi Sakamoto, both of Kiryu, Japan, assignors to Nihon Servo Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 9, 1981, Ser. No. 281,700
Claims priority, application Japan, May 26, 1981, 56-75188[U]
Int. Cl.³ H02K 5/00
U.S. Cl. 310—89 9 Claims

1. An electric motor comprising:

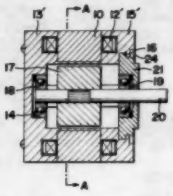
a rotor including a shaft;

a stator comprising a body of solidified moldable electrical insulating material in which stator windings and an iron core are embedded and including a bore closed at one end

by said material and open at the other end in which said rotor is received;

a bearing housing mounted in the open end of said bore and having a rotor shaft hole therethrough;

bearing means at the closed end of said bore and on said bearing housing on which said rotor is rotatably mounted; and



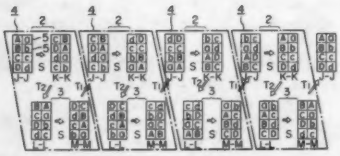
means for rigidly securing said bearing housing in said bore and comprising a sealing space between said bearing housing and said body accessible from the exterior of said body and solidified insulating material of the stator body in said sealing space to fix said bearing housing to said body.

4,384,227

ARMATURE WINDING FOR A DYNAMOELECTRIC MACHINE

Shigetaka Kawai, Kobe, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 4, 1981, Ser. No. 270,394
Claims priority, application Japan, Jun. 9, 1980, 55-78197
Int. Cl.³ H02K *3/14*
U.S. Cl. 310—213 **5 Claims**



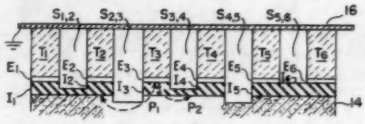
1. A dynamoelectric machine comprising a generally cylindrical armature, said armature comprising a core including a plurality of slots in the circumferential edge thereof, in which a plurality of coils are wound in a plurality of poles and phases, said coils comprising a plurality of separate individual strands arranged in strand groups, wherein said strands of said coils are overlapped in a plurality of levels with each strand being transposed along the length of the coil in relation to the other of said strands such that they are transposed in the sections of said slots by an angle of substantially 360 degrees divided by the number of said strand groups over which the strands are to be transposed, and are reverse transposed at the end connecting portions by an angle of substantially 360 degrees divided by twice the number of said strand groups over which the strands are to be transposed, such that a total transposition substantially equal to 360 degrees will be achieved across all of said strand groups.

4,384,228

ACOUSTO-ELECTRIC TRANSDUCER

J. Fleming Dias, Palo Alto, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Dec. 18, 1980, Ser. No. 217,633
Int. Cl.³ H01L *41/04*
U.S. Cl. 310—313 D **6 Claims**



1. An array of acousto-electric transducers, comprising

a base,

an array of planar transducers mounted on said base in spaced parallel relationship, said transducers vibrating at a given resonant frequency in a plane perpendicular to said base when excited, and

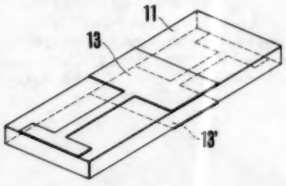
means for causing surface waves that emanate in opposite directions along said base to be reflected by transducers on either side so as to follow paths of respectively different lengths in going to the adjacent transducers and back to the transducer from which they emanated, the difference in path lengths being such that the surface waves return to the transducer from which they emanated out of phase with each other.

4,384,229

TEMPERATURE COMPENSATED PIEZOELECTRIC CERAMIC RESONATOR UNIT

Takeshi Inoue, and Sadayuki Takahashi, both of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Feb. 10, 1981, Ser. No. 233,141
Claims priority, application Japan, Feb. 14, 1980, 55-16847; Mar. 6, 1980, 55-28506; Mar. 6, 1980, 55-28507
Int. Cl.³ H01L *41/08*
U.S. Cl. 310—315 **7 Claims**



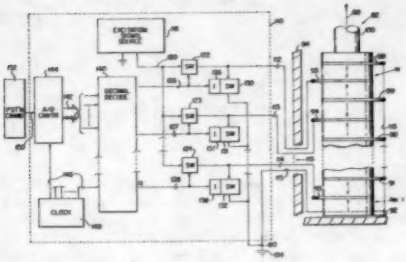
1. A piezoelectric ceramic resonator unit comprising a thickness mode piezoelectric ceramic resonator and a ceramic capacitor connected in series with the resonator, wherein a capacitance Ca of said ceramic capacitor and a damped capacitance Co of said resonator have the following relationship $Co \leqq Ca \leqq 30Co$, wherein (i) the temperature coefficient of said serially connected ceramic capacitor is different from that of said piezoelectric ceramic resonator; (ii) said ceramic capacitor has an aging characteristic such that the ratio of the capacitance Ca of said ceramic capacitor to the damped capacitance Co of said piezoelectric ceramic resonator, i.e. Ca/Co, increases as time elapses; and (iii) said ceramic capacitor has a positive temperature coefficient in its dielectric constant and a relatively small temperature dependent variation in its dielectric loss tangent.

4,384,230

DIGITAL PIEZOELECTRIC ACTUATOR

George R. Wisner, Deep River, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Nov. 6, 1980, Ser. No. 204,727
Int. Cl.³ H01L 41/00
U.S. Cl. 310—317 10 Claims



1. A linear actuator with piezoelectric displacement generator for linearly extending and retracting over a total range of extension along an extension axis thereof in response to voltage excitation signals presented from an external voltage signal source, comprising:

housing means for providing a compressive load along the extension axis of the displacement generator;

coupling means, disposed in said housing and responsive to the displacement generator for providing an output manifestation of the extension and retraction thereof;

as characterized by:

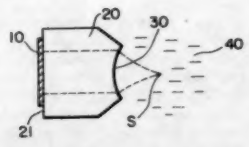
a displacement generator having discrete groups of piezoelectric material segments disposed coaxially in tandem along the extension axis, each group separately connected for response to bistable state voltage excitation signals presented individually thereto from the external voltage source in alternate extended state and quiescent state magnitudes, each group responding by alternately extending and retracting linearly along the extension axis in correspondence with said extended and quiescent state magnitudes, whereby the instant lineal sum of the extended and retracted states of all of said groups of segments define the instant actual extension of the actuator.

4,384,231

PIEZOELECTRIC ACOUSTIC TRANSDUCER WITH SPHERICAL LENS

Isao Ishikawa, Hino; Hiroshi Kanda, Tokorozawa, and Toshio Kondo, Kunitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 30, 1980, Ser. No. 145,146
Claims priority, application Japan, May 11, 1979, 54-57096; Jun. 25, 1979, 54-79209
Int. Cl.³ H01L 41/08
U.S. Cl. 310—335 6 Claims



1. An acoustic spherical lens comprising:

propagating means for forming a solid acoustic energy propagating medium; and

piezoelectric transducer means for generating acoustic energy disposed on one side of the propagating means,

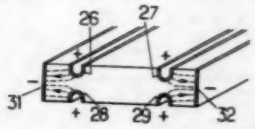
wherein the other side of the propagating means is provided with the shape of a concave spherical surface comprising a bubble surface formed by gaseous expansion in said propagating means and a taper surface except in the region of the concave spherical surface.

4,384,232

GROOVED-ELECTRODE PIEZOELECTRIC RESONATOR

Pierre Debely, Geneva, Switzerland, assignor to Ebauches, S.A., Switzerland

Filed Oct. 10, 1980, Ser. No. 195,775
Claims priority, application France, Oct. 15, 1979, 79 25562
Int. Cl.³ H01L 41/04
U.S. Cl. 310—370 9 Claims



1. A tuning fork piezoelectric resonator having two substantially coplanar and parallel tines comprising each:

first and second substantially parallel main surfaces and first and second edge surfaces substantially perpendicular to said main surfaces;

a first groove disposed in said first main surface in a direction substantially parallel to said edge surfaces; and

means for producing an electrical field in a direction substantially parallel to said main surfaces including a first electrode located at least partially in said groove and a second and a third electrode disposed each on one of said edge surfaces.

4,384,233

TELEVISION CAMERA TUBE ASSEMBLY AND ELECTRICAL CONTACT FOR TARGET ELECTRODE

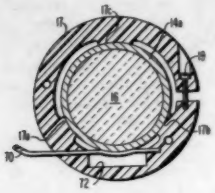
John J. Colgan, Haddon Heights, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Mar. 13, 1981, Ser. No. 243,392
Int. Cl.³ H01J 5/50, 31/38
U.S. Cl. 313—51 5 Claims

1. In a television camera tube assembly for an elongated tube of the type including a target electrode at one longitudinal end thereof and an electrical contact coupled to said target electrode, and electrode contacts at the other end thereof for connection to electrodes other than the target, said tube assembly further including cylindrically shaped magnetic coils surrounding at least a portion of said tube, and a tube mounting, the improvement comprising:

a wire disposed in the tube mounting of said assembly in an attitude tangential to a radial periphery about the longitu-

dinal axis of said elongated tube at a radius to create an interference fit with said electrical contact coupled to said



target electrode and thereby establish electrical contact thereagainst.

4,384,234

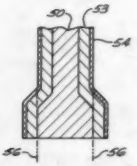
SPARK PLUG WITH HEAT CONDUCTING SLEEVE FOR CENTER ELECTRODE

Henry F. Breit, Attleboro, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 101,357, Dec. 7, 1979, abandoned, which is a continuation-in-part of Ser. No. 20,112, Mar. 13, 1979, abandoned. This application Apr. 13, 1981, Ser. No. 253,140

Int. Cl.³ H01T *13/20*

U.S. Cl. 313—142 12 Claims



1. A spark plug for use with an internal combustion engine comprising a body of heat resistant, electrically insulative material having first and second ends, a bore extending from the first to the second end, an elongated electrically conductive center electrode member received in the bore and projecting beyond the first end of the body, a generally tubular shaped shell of electrically conductive material adapted to support the body, and a portion of the shell disposed a selected distance from the end of the projecting center electrode member, the center electrode member composed of a core of metal having good erosion and corrosion resistance characteristics, a sleeve of metal having higher heat conductivity than the core metallurgically bonded thereto and a coating of corrosion and erosion resistant material disposed on the outer surface of the sleeve.

4,384,235

LINEAR FILAMENT ASSEMBLY WITH REFRACTORY INSULATING SUPPORT ROD FOR HALOGEN LAMP

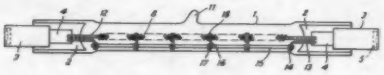
Anthony W. Bollon, London, and Christopher J. Clark, Wembley, both of England, assignors to Thorn EMI Limited, London, England

Filed May 20, 1980, Ser. No. 151,646

Claims priority, application United Kingdom, May 22, 1979, 7917819

Int. Cl.³ H01K *1/18, 1/50*

U.S. Cl. 313—276 11 Claims



1. A linear filament assembly for a halogen cycle incandescent lamp, the assembly including: a generally linear coiled filament; respective conductive filament supports secured to the ends of the filament; respective metal foil elements secured to the filament supports; a refractory insulating rod extending alongside the filament coil; respective end supports connecting the ends of the rod to the metal foil elements; a plurality of wire supports spaced at intervals along the filament, each support wire being securely fixed to the rod and being formed with a coil of at least two turns of substantially the same diameter, the turns being sufficiently close to support the filament coil, wherein the pitch and diameter of the coil part are such that it loosely embraces and supports the filament coil without meshing therewith.

4,384,236

ELECTRIC LAMP WITH A SLEEVE-SHAPED CAP

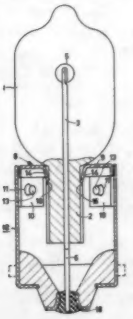
Paul Hellwig, and Werner Schlagheck, both of Aachen, Fed. Rep. of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Aug. 8, 1980, Ser. No. 176,313

Claims priority, application Fed. Rep. of Germany, Aug. 17, 1979, 2933359

Int. Cl.³ H01J *5/48, 5/50*

U.S. Cl. 313—318 3 Claims



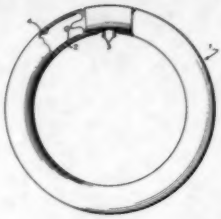
1. An electric lamp with a bulb and a sleeve-shaped cap, in which an inner part is present, said inner part including means for joining to the sleeve-shaped cap which consists of a cover plate with at least two spring clips extending along the inside wall of the cap and provided with openings which engage elements protruding from the cap, in which the elements protruding into the sleeve-shaped cap are formed in the shape of projections integral with the cap, over which projections, when the inner part is inserted into the cap, the spring clips fit and lock into position, by means of the openings which correspond to the cross section of the projections.

4,384,237

FLUORESCENT LAMP CONTAINING ADHESIVE FRIT IN PHOSPHOR COATING

Fred R. Taubner, Danvers; Vincent Chiola, Towanda, and Albert K. Fan, North Towanda, all of Pa., assignors to GTE Products Corporation, Stamford, Conn.

Filed Oct. 20, 1980, Ser. No. 198,386
Int. Cl.³ H01J 61/46
U.S. Cl. 313—486 1 Claim



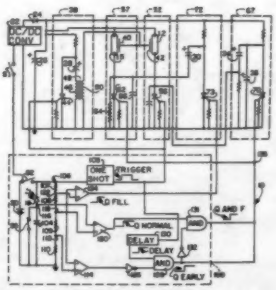
1. In a fluorescent lamp comprising a sealed glass envelope having electrodes at its ends and containing a coating of phosphor particles on the interior surface of the envelope, the improvement comprising a melted and solidified amorphous borate-phosphate frit disposed throughout said coating of phosphor particles and bonding said phosphor particles to each other and to the glass envelope, the frit having the general composition $Ca_{1-x+2n}Ba_xO_{1+2n}.mB_2O_3.nP_2O_5$, wherein x is between about 0.2 to 0.4, n is between about 0.7 to 1.3, and m is between about 1.7 and 2.3.

4,384,238

ELECTRONIC STROBE FLASH APPARATUS FOR INDIRECT AND DIRECT FLASH

Roger J. Greenwald, Churchville, and Scott A. Brownstein, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 101,666, Dec. 10, 1979, abandoned.
This application Dec. 15, 1980, Ser. No. 216,395
Int. Cl.³ H05B 41/34
U.S. Cl. 315—151 15 Claims



1. In electronic strobe flash apparatus having a first energizable flashtube arranged to project light in a first direction to illuminate a scene indirectly, and a second energizable flashtube arranged to project light in a second direction to illuminate the scene directly, the improvement comprising.

(a) means for energizing one of said flashtubes to illuminate the scene; and

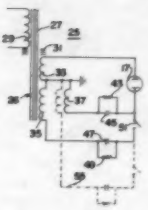
(b) light regulating means for de-energizing said energized flashtube and energizing the other of said flashtubes to illuminate the scene with light produced by only one of said flashtubes at any one time.

4,384,239

ELECTRICAL CIRCUIT FOR GASEOUS DISCHARGE LAMP

Donald A. Davenport, Park Ridge, Ill., assignor to Micron Industries Corporation, Stone Park, Ill.

Filed Jan. 4, 1982, Ser. No. 336,696
Int. Cl.³ H05B 37/00, 41/16
U.S. Cl. 315—282 7 Claims



1. In a multi-color printing apparatus including a gaseous discharge lamp, a circuit for selectively controlling the power applied to said lamp, comprising, in combination, a transformer having a primary winding and a plurality of of output windings, said lamp having first and second electrodes, a first of said output windings having a terminal connected to one electrode of said lamp, a first capacitor connected in a circuit path from said second electrode to a second output winding; switch means, and a second capacitor connected in series to a third output winding and through said switch means to said second electrode, respective resistors connected across said capacitors, said second and third output windings having respective terminals connected in common to the other terminal of said first output winding, and said switch means being actuable to selectively connect said second capacitor in the operating circuit path of said lamp to control the power to said lamp, whereby said output windings connected to said capacitors provide current limiting characteristics for limiting the inrush charging current to the capacitors to thereby minimize electromechanical stresses therein.

4,384,240

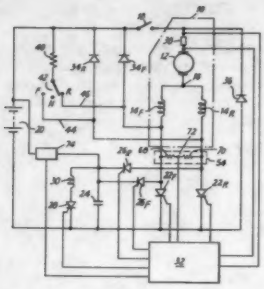
REGENERATIVE BRAKING SYSTEM FOR THREE-TERMINAL D.C. MOTOR

Albert E. Sloan, Gateshead, England, assignor to Technical Operations Limited, Gateshead Nell, England

Filed Mar. 13, 1981, Ser. No. 243,560
Claims priority, application United Kingdom, Mar. 18, 1980, 8009095
Int. Cl.³ H02P 5/16, 3/14
U.S. Cl. 318—255 8 Claims

1. A pulse control circuit for a d.c. series motor having an armature and two oppositely-wound field windings, comprising two semiconductor switching devices each connected in series with the armature and a respective one of the field windings, means for controlling the mark-to-space ratio of switching of each of the semiconductor switching devices, one or other of the main semiconductor switching devices being brought into operation in dependence upon the setting of a direction selector thereby to determine the direction of drive of the armature, two freewheel diodes each connected in series with the armature and a respective one of the field windings, switch means operable to connect the motor in a regenerative braking mode in which the armature and each field winding are connected to the battery in series with the associated freewheel diode and with a unidirectional current path so that charging current can flow from the motor to the battery when

the armature is rotating in a direction contrary to that selected by the direction selector, means for effecting initial excitation of at least one field winding on switching of the circuit to the



regenerative braking mode, sensing means for sensing the armature current during regenerative braking and means for switching both semiconductor switching devices into conduction if the current exceeds a predetermined value.

4,384,241

SEWING MACHINE DRIVE

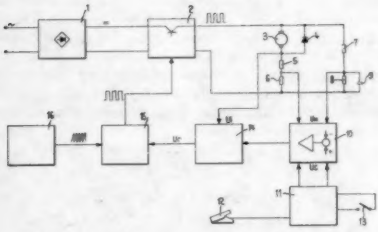
Otmar Stillhard, Steckborn, Switzerland, assignor to Fritz Gegauf Aktiengesellschaft Bernina-Nachmaschinenfabrik, Steckborn, Switzerland

Filed Oct. 17, 1980, Ser. No. 198,241

Claims priority, application Switzerland, Oct. 19, 1979, 9407/79

Int. Cl.³ H02P 5/06

U.S. Cl. 318—317 **7 Claims**



1. A sewing machine drive for connection to an a.c. power supply, comprising:

a d.c. motor;

a rectifier coupled to the a.c. power supply and delivering a d.c. voltage for said motor;

a chopper connected to said motor and receiving said d.c. voltage, said chopper being controlled by a pulse modulator which is connected to an oscillator and to a control circuit delivering a control voltage for adjusting the duty ratio of pulses produced by said pulse modulator in dependence upon the speed of said motor so as to maintain said speed of said motor substantially constant; and

a current limiting circuit connected to said pulse modulator and controlled by a voltage proportional to current in said motor for limiting said control voltage to a maximum value, said value being continuously variable in proportion to said current in said motor, any further increase of said motor current above a predetermined value resulting in a decrease in said speed of said motor such that motor output power is substantially constant for all motor speeds.

4,384,242

SPEED CONTROL SYSTEMS OF SYNCHRONOUS MOTORS

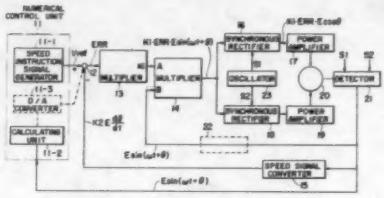
Tadahiro Ono, Shizuoka, Japan, assignor to Toshiba Kikai Kabushiki Kaisha and Kabushiki Kaisha Toei Denki Seisakusho, both of Tokyo, Japan

Filed Jun. 3, 1981, Ser. No. 270,116

Claims priority, application Japan, Jun. 12, 1980, 55-79254

Int. Cl.³ H02P 5/40

U.S. Cl. 318—721 **8 Claims**



1. A speed control system of a synchronous motor provided with a plurality of stator windings which are displaced electrically and mechanically by predetermined angles and a rotor, comprising:

means driven by said rotor for producing a phase modulated signal E sin $(\omega t+\theta)$, where E represents voltage, $\omega=2\pi f$, θ represents a rotational angle of said motor and f a frequency;

speed signal converting means which forms a signal corresponding to a differential of said rotational angle;

means for producing a speed instruction signal corresponding to a rotational speed of said rotor;

means for producing an error signal corresponding to a difference between said signal formed by said speed signal converting means and said speed instruction signal;

a multiplier for multiplying said phase modulated signal with said error signal;

means for producing a plurality of reference signals having a phase difference of said predetermined angles; and

synchronous rectifier means for rectifying an output of said multiplier according to said reference signals for producing currents supplied to said stator windings of said motor.

4,384,243

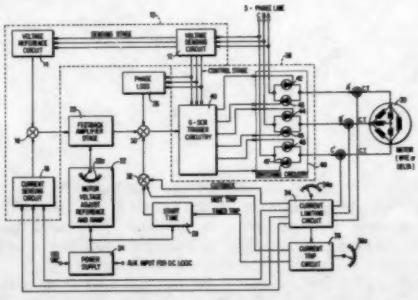
ENERGY SAVING MOTOR CONTROLLER

Nicholas G. Muskovac, Palm Harbor, Fla., assignor to Vectrol, Inc., Oldsmar, Fla.

Filed Jun. 20, 1980, Ser. No. 161,327

Int. Cl.³ H02P 5/40

U.S. Cl. 318—729 **14 Claims**



1. A multi-phase motor controller for controlling voltage and power expended by a multi-phase motor producing motor

voltage and motor current, said controller adapted for external connection with said motor and comprising:

a plurality of sensing means, one for each phase of said multi-phase motor controller, for detecting respective phase angle differences between said motor voltage and said motor current for each phase individually;

summation circuit means for developing a summation of the phase angle differences;

a feedback amplifier connected to said summation circuit means for comparing the summation of said phase angle differences with a desired phase angle difference so as to generate a feedback control signal; and

control means connected to each said sensing means and to said feedback amplifier, and responsive to said feedback control signal for controlling the voltage and power expended by said multi-phase motor in accordance therewith;

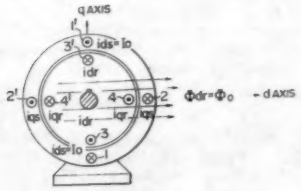
whereby said multi-phase motor controller controls the voltage and power expended by any said multi-phase motor, regardless of type, without internal modification or connection to the multi-phase motor.

4,384,244

TORQUE CONTROL SYSTEMS OF INDUCTION MOTORS

Mitsuo Matsumoto, Kikubunji, Japan, assignor to Toshiba Kikai Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 23, 1980, Ser. No. 171,645
Claims priority, application Japan, Jul. 28, 1979, 54-96379
Int. Cl.³ H02P 5/40
U.S. Cl. 318—803 **7 Claims**



1. A torque control system of an induction motor having m phase stator windings and P poles, comprising means for producing a predetermined torque instruction, and means responsive to said torque instruction for generating and applying a phase n voltage V_{ns} expressed by the following equation to the stator windings of said induction motor to cause it to produce a torque corresponding to said torque instruction,

$$V_{ns} = r_s I_o \cos\left(\phi - \frac{2(n-1)}{m}\pi\right) - \left(l_m I_o \frac{d\phi}{dt} + r_s I_2\right) \sin\left(\phi - \frac{2(n-1)}{m}\pi\right)$$

where

$$\phi = \frac{P}{2}\theta + \frac{r_r}{l_m I_o}\int I_2 dt \text{ (radian)},$$

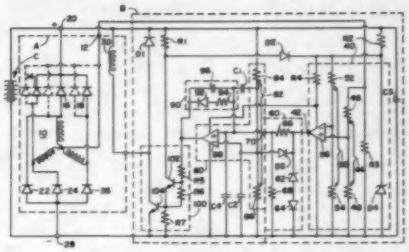
m: number of phases equal to 2 or more,
n: 1, 2, . . . m,
p: number of poles of the induction motor,
I_o: constant exciting current of the stator windings (ampere),
r_s, r_r, l_r and l_m: constants inherent to the induction motor,
θ: rotor rotating angle (radian) of the induction motor, and
I_2: instructed rotor current (ampere) corresponding to the torque instruction.

4,384,245

ALTERNATOR VOLTAGE REGULATOR

Ronald G. Metter, Chicago, Ill., assignor to TRW Inc., Cleveland, Ohio

Filed Aug. 12, 1980, Ser. No. 177,705
Int. Cl.³ H02J 7/14; H02P 9/04
U.S. Cl. 322—28 **21 Claims**



1. A voltage regulator circuit for an alternator having a rotor which rotates relative to a stator for generating an alternator voltage output and a field winding for increasing the alternator voltage output when a field current flows therethrough, said voltage regulator circuit comprising:

speed sensing means for producing a reference signal in response to the rotation of the rotor relative to the stator exceeding a predetermined speed;

first comparator means for producing an enable signal in response to the alternator output voltage reaching a predetermined relationship with said reference signal, said first comparator means being operatively connected with said speed sensing means and with said alternator;

signal altering means for altering the amplitude of said reference signal in response to said enable signal, said signal altering means being operatively connected to said first comparator means; and,

switching means for switching the field current to said field winding in response to said enable signal, said switching means being operatively connected with said first comparator means.

4,384,246

SERIES-THYRISTOR SUBSYNCHRONOUS DAMPER FOR POWER GENERATORS

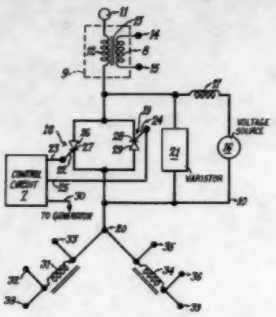
Einar V. Larsen, Wallingford, Pa.; Daniel H. Baker, and Colin E. J. Bowler, both of Schenectady, N.Y., assignors to General Electric Company, N.Y.

Filed Jan. 30, 1981, Ser. No. 229,791
Int. Cl.³ H02H 7/06
U.S. Cl. 322—58 **10 Claims**

1. In a system comprising a voltage generator having a step-up transformer, a circuit for damping subsynchronous resonance oscillations occurring in voltage generators comprising:

a pair of thyristors connected in series with one of the windings of a step-up transformer connected with a voltage generator;

an electrical reactor connected in series with a voltage source and with said thyristors for supplying electrical



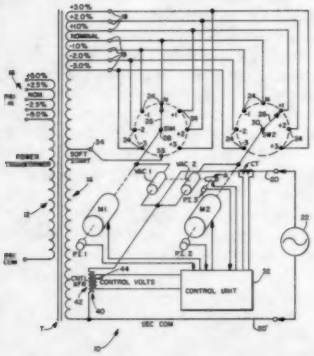
current to said transformer to cancel any subsynchronous resonance current flow to said voltage generator.

4,384,247

UNDER-LOAD SWITCHING DEVICE PARTICULARLY ADAPTED FOR VOLTAGE REGULATION AND BALANCE

Richard E. Stewart, Bartlesville, Okla., assignor to TRW Inc., Cleveland, Ohio

Filed May 8, 1981, Ser. No. 261,892
Int. Cl.³ G05F *1/14*
U.S. Cl. 323—256 **14 Claims**



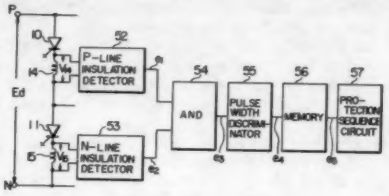
1. A device for switching, under load, between transformer taps and the like, there being a plurality of such taps, comprising first and second selector means adapted to be connected in parallel to said plurality of taps, each selector means being capable of independently selecting any tap of said plurality, means for operating the first and second selector means, first and second switch means connected to said first and second selector means, respectively, and operable for alternately connecting a tap selected by the first selector means and a tap selected by the second selector means to a conductor, means for operating the first and second switch means such that only one selected tap is connected to the conductor at a time, and means for determining which selector means selects the tap that is connected to the conductor to enable operation of the other selector means, thereby permitting tap selection under no-load conditions.

4,384,248

METHOD AND APPARATUS FOR DETECTING SHORTCIRCUIT IN ARM OF GTO INVERTER

Yasuo Matsuda; Kazuo Honda, and Takeo Maeda, all of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jun. 17, 1980, Ser. No. 160,174
Claims priority, application Japan, Jun. 22, 1979, 54-78154; Dec. 17, 1979, 54-162771
Int. Cl.³ G01R *31/02*; H02H *7/122, 3/28*
U.S. Cl. 324—51 **6 Claims**



3. An apparatus for detecting a shortcircuit in an arm of a GTO inverter provided with at least one pair of arms, each arm being composed of a series connection of a single gate turn-off thyristor and a single reactor, said apparatus comprising:

(i) first means connected across one of the reactors of said paired arms for sensing a voltage thereacross;

(ii) second means connected across the other of said reactors for sensing a voltage thereacross;

(iii) third means connected to said first and second means for ANDing the outputs thereof; and

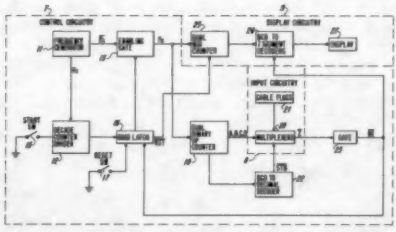
(iv) fourth means connected to the output of said third means for detecting if said third means produces an output for longer than a predetermined time period.

4,384,249

CABLE TESTING APPARATUS AND METHOD

Alvaro Medina, 714 Lincoln Pl., Boulder, Colo. 80302

Filed Sep. 5, 1980, Ser. No. 184,573
Int. Cl.³ G01R *31/02*
U.S. Cl. 324—51 **19 Claims**



1. A cable testing apparatus for testing the wires of a multi-wire cable for opens, said apparatus comprising:

input means adapted to be connected to a multi-wire cable to enable testing for opens in wires of said cable that has been directly electrically connected at one end to form wire pairs, said input means including signal routing means connectable with the other end of said wires of said cables for maintaining different pairs of wires of said cable so connected electrically separated from one another and for producing a distinguishable indication whenever a said pair of wires of said cable is sensed to be open;

indicating means connected with said signal routing means to receive said distinguishable indication of an open there-

from, said indicating means including digital display means; and

control means connected with said indicating means and said signal routing means for causing automatic sequential monitoring of said pairs of wires of said cable when so connected to said input means and for causing interruption of said sequential monitoring with said display means being caused to produce a discernable digital indication of an open then sensed at said input means.

4,384,250

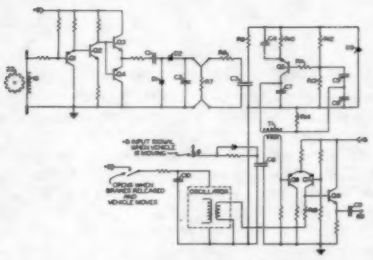
VITAL VEHICLE MOVEMENT DETECTOR

John O. G. Darrow, Murrysville, Pa., assignor to American Standard Inc., Swissvale, Pa.

Filed Apr. 13, 1981, Ser. No. 253,439

Int. Cl.³ G01P *3/56*

U.S. Cl. 324—161 **8 Claims**



1. A vital vehicle movement detector, for assuring the integrity of vehicle speed measuring apparatus, comprising,

(a) input means coupled for receiving speed signals from said speed measuring apparatus and responsive for supplying corresponding output signals with characteristics representing vehicle speed,

(b) a filter-rectifier network coupled to said input means for producing a selected polarity output signal only in response to input signals representing at least a predetermined minimum vehicle speed,

(c) a level detector means coupled to said filter-rectifier network and operable for producing an output when the level of said selected polarity signal indicates a vehicle speed at least equal to said predetermined minimum,

(d) a differential amplifier means coupled to receive the output of said level detector means and responsive thereto for producing an output signal only when enabled by a bias signal of preselected characteristic and at least a predetermined minimum level,

(1) said differential amplifier means also coupled for supplying said output signal to enable continued movement of said vehicle, and

(e) an inhibitor circuit means coupled to said differential amplifier means for supplying said bias signal having said preselected characteristic and predetermined level only when said vehicle speed is greater than zero.

4,384,251

PULSE-DUTY-CYCLE-TYPE EVALUATION CIRCUIT FOR A VARIABLE INDUCTANCE

Bernd Schelling, Stuttgart, and Ulrich Flaig, Markgroningen, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Oct. 9, 1980, Ser. No. 195,660

Claims priority, application Fed. Rep. of Germany, Oct. 18, 1979, 2942134

Int. Cl.³ G01B *7/14*; B01D *5/20*

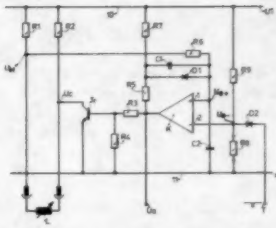
U.S. Cl. 324—207 **5 Claims**

1. Evaluation circuit for an inductive transducer of which the inductance varies with a physical magnitude to be measured, such as length of path traveled, pressure, or position of a pedal, comprising, in addition to said transducer:

a transistor (Tr) having emitter, collectors and base electrodes and having the inductance (L) of said transducer connected in series with the emitter-collector path of said transistor and with a voltage source in such a manner as to carry at least a part of the current passing through said emitter-collector path while the remainder of said current, if any, does not pass through any element having an electrical reactance;

resistance providing means (R_1) interposed in series with said emitter-collector current path of said transistor, said inductance (L) and said voltage source;

a comparator (K) having a first input (1) connected to said resistance means and to said voltage source so as to obtain



therefrom a voltage derived from the variation of the current through said resistance means, and a second input connected with the tap of a voltage divider (R_8R_9) connected across the output of said voltage source and having an output connected to one of said inputs thereof through a feedback circuit branch comprising a first diode (D_1), said last-mentioned comparator input being a noninverting input, said output of said comparator being also connected for providing alternating voltage step waves to said base electrode of said transistor, and

a second diode (D_2) connected between said second input of said comparator and a source of periodic trigger signals (T),

whereby trigger signals from said source produce voltage waves at said output of said comparator of which the duty cycle corresponds to the magnitude of said inductance.

4,384,252

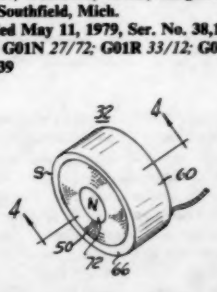
CUP SHAPED MAGNETIC PICKOFF FOR USE WITH A VARIABLE RELUCTANCE MOTION SENSING SYSTEM

Roland K. Kolter, Dearborn, Mich., assignor to The Bendix Corporation, Southfield, Mich.

Filed May 11, 1979, Ser. No. 38,145

Int. Cl.³ G01N *27/72*; G01R *33/12*; G01B *7/14*

U.S. Cl. 324—239 **1 Claim**



1. A magnetic pickoff comprising:

a ferromagnetic cup-like outer pole piece having:

a central axis, a hollow walled member having a first and second end and an end member, said end member enclos-

ing said second end of said walled member forming a cylindrical cavity and where said first end is maintained perpendicular to said central axis forming a first pole face;

a cylindrical inner pole piece mounted within said walled member upon said end member, colinear to said central axis, forming a toroidal coil space therebetween; said inner pole piece having a second pole face opposite said end member;

said inner pole piece further comprising:

source means for causing said inner and said outer pole pieces to achieve opposite magnetic polarities so that magnetic flux flows between said outer and said inner poles forming a first magnetic circuit;

signal generating means responsive to the rate of change of the magnitude of flux flowing within said primary circuit and wherein said outer pole piece, said inner pole piece and said source means cooperate to provide a first means for causing the average flux density per unit area flowing through said second pole face to be greater than the average flux density per unit area flowing through said first pole face wherein the area of said first pole face is determined by the radii r_3–r_2 wherein r_3 and r_2 correspond to the radii defining the thickness of said walled member, and

where the area of said second pole face is determined by the radius r_1 and wherein $(r_3^2-r_2^2)$ is greater than r_1^2 such that the area of said first pole face is greater than the area of said second pole face, and

wherein said first means additionally consists of said end member having a thickness, b, and where the thickness of said end plate and the radius r_1, of said inner pole piece, are related so that $2b$ is greater than r_1 therein providing a low flux density path throughout said end plate therein avoiding saturation of said end plate and reducing stray fields.

4,384,253

MEANS FOR ACHIEVING PARALLELISM OF THE MAGNETIC AXES OF A DIFFERENTIAL MAGNETIC FIELD PROBE

Friedrich M. O. Förster, In Laisen 70, D-7410 Reutlingen 1, Fed. Rep. of Germany

Filed Sep. 26, 1980, Ser. No. 191,172

Claims priority, application Fed. Rep. of Germany, Oct. 24, 1979, 2942847

Int. Cl.³ G01R *33/022*

U.S. Cl. 324—244 **17 Claims**

1. A magnetic field differential probe having a housing and two magnetic field sensors each with a magnetic core element having its magnetic axis extending parallel to a predetermined straight line, which magnetic core elements are spaced along said straight line at a prescribed base distance, said sensors being connected to evaluation means for generating an electric signal corresponding to the difference between the magnetic fields existing at the respective locations of the magnetic field sensors, comprising:

a plurality of diamagnetic wires mounted on said probe housing in tension and arranged in a straight line parallel to said predetermined line; and

the magnetic core elements are each affixed to said plurality of wires and mutually spaced from one another at said prescribed base distance.

4,384,254

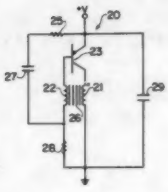
OSCILLATOR/DRIVER CIRCUIT FOR FLUXGATE MAGNETOMETER

Robert E. Brown, Silver Spring, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jun. 6, 1980, Ser. No. 157,925

Int. Cl.³ G01R *33/04*; H03K *3/30*

U.S. Cl. 324—253 **5 Claims**



1. An improved oscillator/driver circuit for a magnetometer of the type having a transistor including emitter, base and collector terminals, and of the type having a drive winding and a control winding operatively wound on a magnetic core, one end of said drive winding being connected to the collector terminal of said transistor and the other end thereof being connected to ground, one end of said control winding being connected to the base terminal of said transistor and the other end thereof being connected to one end of a bias resistor forming thereat a junction, the other end of said bias resistor being connected to ground, and the emitter terminal of said transistor being connected to a power source so as to provide sufficient base current for turn on of said transistor and so as to provide positive feedback in the form of base current pulses from said drive winding to said control winding when said transistor is turned on, wherein the improvement comprises:

means operatively connected between the power source and the junction formed by the other end of said control winding and the one end of said bias resistor so as to control the on time of said transistor by increasing the length of the base current pulses provided by the positive feedback from said drive winding to said control winding such that termination of the base current pulses and the turning off of said transistor is substantially controlled by saturation of said magnetic core, and after turn off of said transistor, said means cooperating with said bias resistor to keep said transistor turned off for a predetermined time before said transistor is turned on again thereby reducing the power normally required to operate said improved oscillator/driver circuit.

4,384,255

NUCLEAR MAGNETIC RESONANCE SYSTEMS

Ian R. Young, Sunbury-on-Thames, England, and Colin G. Harrison, San Jose, Calif., assignors to Picker International Limited, Wembley, England

Filed Aug. 5, 1980, Ser. No. 175,673

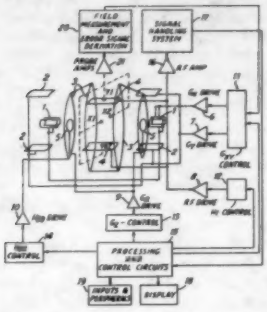
Claims priority, application United Kingdom, Aug. 10, 1979, 7927974

Int. Cl.³ G01R *33/08*

U.S. Cl. 324—309 **10 Claims**

1. A method of examining a body by nuclear magnetic resonance, including: applying magnetic fields to induce resonance preferentially in a slice of the body; subsequently applying at least one further magnetic field having a gradient in a chosen direction in the slice to induce a dispersion of the resonance frequencies in said chosen direction in the slice; and measuring resonance signals from the slice at intervals during the applications of the field gradient, the total field integral of the gradient component being substantially equal between successive sam-

ples; wherein the field gradient is applied as a sequence of discrete pulses with intervals of substantially zero field gradient intensity between adjacent pulses, and the resonance signals are sampled during at least some of the said intervals.



4,384,256

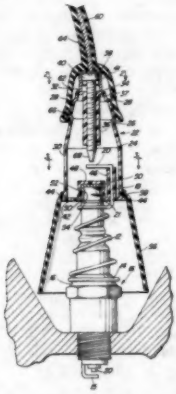
DIAGNOSTIC IGNITION SPARK DETECTOR

Ronald J. Di Monte, 30 W. 116 Argyll La., Naperville, Ill. 60540

Filed Mar. 18, 1981, Ser. No. 245,156

Int. Cl.³ F02P *17/00*

U.S. Cl. 324—396 **3 Claims**



1. A diagnostic ignition spark detector in an internal combustion engine comprising a spark plug, hollow means for spacedly enveloping said spark plug, an upper hollow member, said means depending from said upper member, upper and lower partial walls on said upper member, a cap extending upwardly from said lower wall, a sleeve extending upwardly from said lower wall adjacent said cap, a sleeve depending from said upper wall, an elongated heated screw frictionally disposed in said depending sleeve, the head of said screw extending above said sleeve and the lower end extending below said sleeve, a metal cap frictionally encompassing the head of said screw, a portion of said screw extending below said sleeve, an expanded metal coiled spring surrounding said spark plug with the lower end grounded on the metal portion of said plug, the upper end of said spring being bent at right angles and frictionally seated in said upstanding sleeve, the free end of said upper end of said spring being bent at right angles, flattened and positioned directly below the lower end of said screw, and a viewing window in said upper hollow member.

4,384,257

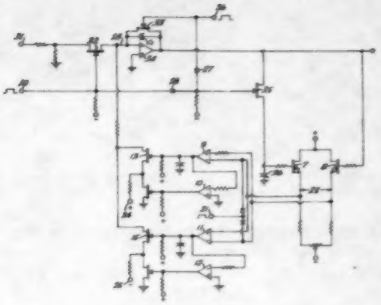
STORAGE STABILIZED INTEGRATOR

William M. Nola, 6396 SW. 96th St., Miami, Fla. 33156

Filed May 29, 1981, Ser. No. 268,358

Int. Cl.³ G06G *7/18*; H03K *17/14*

U.S. Cl. 328—127 **3 Claims**



1. The process of stabilizing an integrator circuit comprising the steps of:

first, integrating a signal in an integrator circuit having an input terminal and an output terminal,

second, storing the output of the integrator in a storage circuit, said storage circuit having an input and an output,

comparing in a comparator means the outputs of the integrator circuit and the storage circuit, said comparator means having a first and second input terminal and an output terminal,

sensing voltage differences at said first and second input terminals of said comparator means,

signalling a drift compensator circuit means having an input and an output, said drift compensator circuit means comprising means to apply a voltage to said integrator to cause its output to match the output of the storage circuit,

successively repeating the aforesaid process so long as the integrator is energized,

said circuit including a normally open switch means to close upon a predetermined integrate signal cyclically applied to said integrator; and

said circuit means including a normally open second switch means adapted to close to apply an output to the storage circuit, and

simultaneously or sequentially opening said first and said second normally open switch means after each integrate cycle.

4,384,258

ELECTRONIC AMPLIFIERS

Julian M. Coles, Cambridge, England, assignor to Crosfield Electronics Limited, London, England

Filed Nov. 4, 1980, Ser. No. 203,947

Claims priority, application United Kingdom, Nov. 5, 1979, 7938211

Int. Cl.³ H03F *3/38*

U.S. Cl. 330—10 **14 Claims**

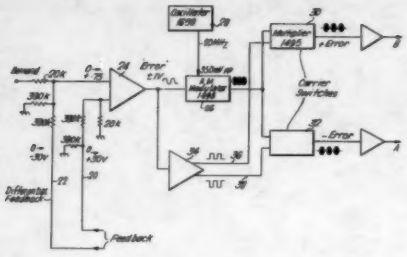
1. An electronic amplifier for driving a load in response to a demand signal, comprising:

a single drive amplifier including means for generating a high frequency carrier and a modulator responsive to the demand signal to modulate the high frequency carrier;

an output means including a plurality of floating output stages connected in series;

and a respective capacitance of very low value for each output stage, each said capacitance being connected to couple the modulated carrier from the single drive ampli-

fier to the respective floating output stage and each output stage having a demodulator for said carrier;



the output means applying the demodulated output signal resulting from the series-connected output stages to the load.

4,384,259

ELECTRICAL POWER SUPPLIES

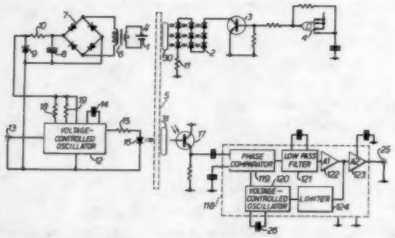
Maurice J. Capewell, North Cheam, England, assignor to Data Beta Limited, Mitcham, England

Filed Feb. 25, 1981, Ser. No. 237,982

Claims priority, application United Kingdom, Feb. 27, 1980, 8006637; Dec. 23, 1980, 8041163

Int. Cl.³ H03F *3/38*

U.S. Cl. 330—10 **5 Claims**



1. An amplifier arrangement including an isolated amplifier having an input section and an output section, an isolated power supply having a primary circuit and a secondary circuit, the secondary circuit of the power supply including a solar cell arranged, when irradiated, to supply direct current to the input section of the isolated amplifier, and the primary circuit of the power supply including a photo-emissive device arranged, when energized, to irradiate the solar cell, the input and output sections of the amplifier being physically separate from each other and the primary and secondary circuits of the power supply being physically separated from each other to permit an isolating member to be interposed between the input and output sections of the amplifier and between the primary and secondary circuits of the power supply.

4,384,260

DEVICE FOR SWITCHING ON AND OFF AND ADJUSTING THE VOLUME OF COMMUNICATIONS EQUIPMENT, SUCH AS TRANSCEIVERS

Klaus Hornburg, Berlin, Fed. Rep. of Germany, assignor to Krone GmbH, Berlin, Fed. Rep. of Germany

Filed Sep. 16, 1980, Ser. No. 187,759

Claims priority, application Fed. Rep. of Germany, Sep. 18, 1979, 2937638

Int. Cl.³ H03G *3/30*

U.S. Cl. 330—129 **12 Claims**

1. Apparatus for switching on, switching off and adjusting the volume of communications equipment such as transceivers, said apparatus comprising:

a non-latching button for selectively completing an electrical circuit within said apparatus;

amplifier means;

volume control means selectively connected to said amplifier means and adapted to provide continuous substantially linear control of said amplifier means;

a power supply internal to said apparatus, said non-latching button being coupled to said power supply, said power supply having a source lead and a return terminal;

means adapted to connect said power supply to an external source of electrical power;

relay means for connecting said power supply to and disconnect said power supply from said volume control means;

means for controlling said relay means;

time delay means connected between said non-latching button and both said relay control means and said volume control means, said time delay having a predetermined timing period; and

automatic switching-off means actuating said relay control means to disconnect said power supply and said amplifier means when loop current in said apparatus is interrupted;

whereby short duration, less than said predetermined timing period, depression of said non-latching button turns said amplifier on and off by connecting and disconnecting said power supply and said amplifier, and depression of said non-latching button for greater than said predetermined timing period adjusts the volume of said amplifier through said volume control means.

4,384,261

CLASS A COMPLEMENTARY SINGLE-ENDED PUSH-PULL AMPLIFIER

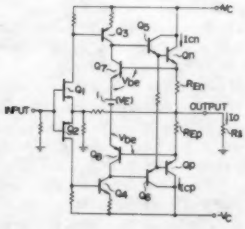
Kenji Yokoyama, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan

Filed Jul. 1, 1981, Ser. No. 279,251

Claims priority, application Japan, Jul. 9, 1980, 55-93419

Int. Cl.³ H03F *3/30*

U.S. Cl. 330—267 **7 Claims**



1. A complementary single-ended push-pull amplifier comprising:

first and second complementary bipolar transistor means;

first and second emitter resistors connected in series between emitters of said first and second complementary bipolar

transistor means, a connection point between said emitter resistors being adapted for connection to a load;

third and fourth complementary bipolar transistors connected in series between bases of said first and second transistor means and having their bases connected to the emitters of said first and second transistors, respectively;

a constant voltage circuit connected between the emitters of said third and fourth transistors to operate said first and second transistor means in the Class A mode;

said third and fourth transistors comparing a voltage across said first and second emitter resistors with a voltage of said constant voltage circuit; and

collector currents of said third and fourth transistors controlling base biases of said first and second transistor means, to thereby operate said first and second transistor means so that a sum of collector currents of said first and second transistor means is kept substantially constant.

4,384,262

TEMPERATURE RESPONSIVE ASTABLE MULTIVIBRATOR

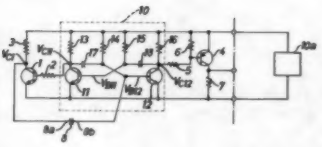
Sigeyuki Akita, and Hiroaki Tanaka, both of Okazaki, Japan, assignors to Nippon Soken, Inc., Nishio, Japan

Filed Mar. 27, 1981, Ser. No. 248,443

Claims priority, application Japan, Apr. 2, 1980, 55-43353

Int. Cl.³ G01K 7/00; H03K 3/282

U.S. Cl. 331—66 **4 Claims**



1. An oscillator circuit responsive to a predetermined ambient temperature, comprising:

an astable multivibrator including a first transistor, and a second transistor connected at its input terminal to the output terminal of said first transistor through a first capacitor and at its output terminal to the input terminal of said first transistor through a second capacitor, each of said capacitors being connected between a pair of resistors for defining a pair of time constants, and at least one of said transistors being arranged to be exposed to an ambient temperature;

first means for receiving an output voltage appearing at the output terminal of said first transistor and for producing an inverted output voltage with a predetermined time delay; and

second means responsive to the inverted output voltage from said first means for applying a bias voltage to said first capacitor and the input terminal of said second transistor at opposite voltage polarity relative to that of a terminal voltage appearing across said first capacitor, the value of said bias voltage being determined in such a way to turn off one of said transistors in relation to said bias voltage when the ambient temperature becomes the predetermined one.

4,384,263

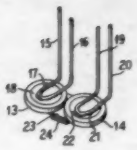
LEADLESS FILTER

Werner E. Neuman, Deerfield; Michael B. Head, Arlington Heights, and Marshall L. Kummel, Buffalo Grove, all of Ill., assignors to Corcom, Inc., Libertyville, Ill.

Filed Apr. 2, 1981, Ser. No. 250,106

Int. Cl.³ H03H 7/01

U.S. Cl. 333—181 **5 Claims**



1. A capacitor arrangement comprising, first and second planar line to ground capacitors with electrical terminals on opposite sides thereof, an electrical conducting grounding tab electrically connected to first sides of said first and second line to ground capacitors, a line to line capacitor with electrical terminals on first and second ends thereof and positioned so that its ends are closely adjacent to said electrical terminals on the second sides of said first and second line to ground capacitors, respectively, a first short lead portion connected between the electrical terminal on the second side of said first line to ground capacitor and the electrical terminal on the first end of said line to line capacitor, a second short lead portion connected between the electrical terminal on the second side of said second line to ground capacitor and the electrical terminal on the second end of said line to line capacitor, a third lead portion attached to the electrical terminal on the first end of said line to line capacitor, a fourth lead portion attached to the electrical terminal on the second side of said first line to ground capacitor and said third and fourth lead portions extending parallel to each other, a fifth lead portion attached to the electrical terminal on the second end of said line to line capacitor, a sixth lead portion attached to the electrical terminal on the second side of said second line to ground capacitor and, said fifth and sixth lead portions extending parallel to each other.

4,384,264

SURFACE ACOUSTIC WAVE DEVICE

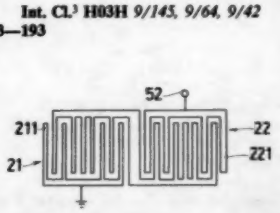
Michio Kadota, Kyoto, Japan, assignor to Murata Manufacturing Company Ltd., Japan

Filed Apr. 18, 1980, Ser. No. 141,369

Claims priority, application Japan, Apr. 24, 1979, 54-50977; Nov. 16, 1979, 54-149352; Mar. 5, 1980, 55-28273; Mar. 5, 1980, 55-28274

Int. Cl.³ H03H 9/145, 9/64, 9/42

U.S. Cl. 333—193 **12 Claims**



1. A surface acoustic wave device, comprising:

a substrate;

first and second sets of interdigital electrodes disposed on said substrate, said sets of interdigital electrodes being spaced apart from each other by a given distance, each

said set of interdigital electrodes comprising a pair of comb-shaped electrodes interdigitated with each other;

said first set of interdigital electrodes being divided into first and second adjacent portion interdigital electrodes along a propagating direction of said surface acoustic wave device, said first and second adjacent portion interdigital electrodes being electrically connected to each other in series, one of said comb-shaped electrodes of one of said portion interdigital electrodes being adapted to be connected to a reference potential; and

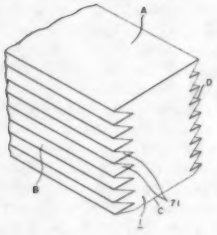
the electrode pattern of said first set of interdigital electrodes being such that the static capacitance of one of said first and second portion interdigital electrodes is different than the static copacitance of the other of said first and second portion interdigital electrodes.

4,384,265

SUPERCONDUCTIVE COIL

Susumu Shimamoto; Toshinari Ando; Hiroshi Tsuji, all of Ibaraki; Takashi Sato, and Yasuhide Hattutori, both of Kobe, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha and Japan Atomic Energy Research Institute, both of Tokyo, Japan

Filed Jul. 28, 1981, Ser. No. 287,819
Claims priority, application Japan, Aug. 5, 1980, 55-107398
Int. Cl.³ H01F 7/22
U.S. Cl. 335—216 **3 Claims**



1. A superconductive coil comprising

a plurality of pancake coils made of superconductive wires and having at least one cooling surface on which first and second fine grooves are respectively formed in different directions wherein said first fine grooves are formed along the surface of said wires along the longitudinal direction of said wires in preparing said superconductive wires and said second fine grooves are formed on the surface said pancake coils so as to intersect said first fine grooves.

4,384,266

FUSE APPARATUS

Christopher C. Lo, Whitehall, Ohio, assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 21, 1981, Ser. No. 332,555
Int. Cl.³ H01H 85/30
U.S. Cl. 337—244 **13 Claims**

1. A fuse (1) comprising

a pair of electrical conducting members (11, 12),

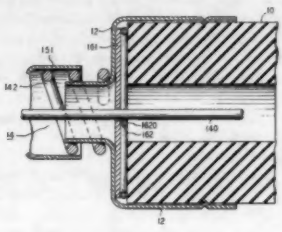
a fuse element (13) connected to a first one of said electrical conducting members, and

alarm means (14, 15) coupling said fuse element to a second one of said electrical conducting members for indicating failure of said fuse.

CHARACTERIZED IN THAT

said fuse further comprises

apparatus (16, 121, 162) slidably engaging said alarm means for electrically coupling said fuse element to said second



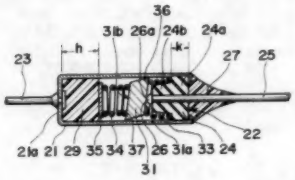
electrical conducting member and for enabling release of said alarm means upon opening of said fuse element.

4,384,267

THERMOSENSITIVE FUSE

Shigeru Aoki, Takatsuki, Japan, assignor to Murata Manufacturing Co., Ltd., Japan

Filed Jul. 6, 1981, Ser. No. 281,227
Claims priority, application Japan, Jul. 7, 1980, 55-96141[U]
Int. Cl.³ H01H 37/76
U.S. Cl. 337—407 **12 Claims**



1. A thermosensitive fuse, comprising:

a casing made of an electrically conductive material, said casing having an axially elongated configuration with its one end opened and the other end closed;

a first conductor connected to said casing;

a meltable substance located in said casing and extending from said closed end of said casing to a position between said closed and opened ends, said meltable substance being in a solid state when it is under a predetermined temperature and in a liquid state when it is above said predetermined temperature;

a bushing made of an electrically non-conductive material and fixedly attached to said open end of said casing;

a second conductor supported by said bushing such that one end of said second conductor projects into said casing in alignment with an axis of said elongated casing and the other end of said second conductor extends outwardly from said casing;

a solid contact member made of, or coated with, an electrically conductive material and having first and second end faces located at opposite ends of said contact member, said end faces being parallel to one another, an angle defined between said end faces and an axis of said contact member extending between the centers of said first and second end faces being other than 90°, said contact member being movably housed in said casing with said first end face facing said meltable substance and said second end face facing said bushing;

a first coil spring housed in said casing between said meltable substance and said first end face of the contact member for

pushing said contact member against said one end of said second conductor; and

a second coil spring, which is weaker than said first coil spring, housed in said casing between said bushing and said second end face of said contact member for biasing said contact member away from said one end of said second conductor, said first and second springs acting on said contact member to produce a moment about said one end of said second conductor such that said contact member contacts said casing and establishes an electrical path between said first and second conductors through said casing and said contact member, said meltable substance being melted above said predetermined temperature to release said first coil spring from pushing said contact member against said one end of said second conductor to effect the separation of said contact member away from said one end of said second conductor by the biasing force of the second coil spring.

4,384,268

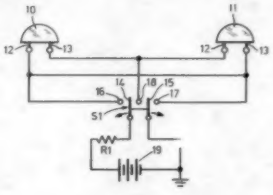
MARINE NAVIGATION ASSISTING APPARATUS

Richard J. Matthewman, 2345 Confederation Pkwy., Penthouse 4, Mississauga, Ontario, Canada

Filed Feb. 10, 1981, Ser. No. 233,070

Int. Cl.³ G08G 3/00; G08B 5/36

U.S. Cl. 340—29 **10 Claims**



1. Apparatus for reminding a boatman of the side of a buoy on which said buoy should be passed comprising first and second light emitting devices each having first and second electrodes and each being of a type that emits light of a first color when a first potential is applied to said first electrode thereof and a second potential is applied to said second electrode thereof and of a second color different from said first color when a third potential is applied to said first electrode thereof and a fourth potential is applied to said second electrode thereof, said first and third potentials being different from each other and said second and fourth potentials being different from each other, means mounting said light emitting devices in spaced apart relationship, and switching means connected to said light emitting devices and adapted for connection to a source of said potentials, said switching means being so connected to said light emitting devices as to be adapted to supply in one position of said switching means said first and second potentials to said first and second electrodes respectively of said first light emitting device and said third and fourth potentials to said first and second electrodes respectively of said second light emitting device, whereby said first and second light emitting devices emit said first and second colors respectively, and in another position of said switching means said first and second potentials to said first and second electrodes respectively of said second light emitting device and said third and fourth potentials to said first and second electrodes respectively of said first light emitting device, whereby said first and second light emitting devices emit said second and first colors respectively whereby when proceeding in a channel marked by starboard and port buoys of two different colors a boatman can set the starboard side one and the port side one of light emitting devices to emit colors that indicate to the boatman the colors of the starboard and port buoys respectively and thereby remind the boatman on which side any one of such buoys should be passed.

4,384,269

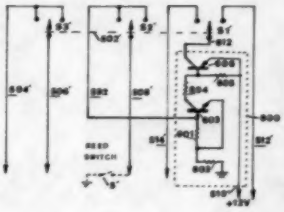
VEHICLE ACCELERATION/DECELERATION WARNING SYSTEM HAVING TURN SIGNAL FEATURES

Robert W. Carlson, 410 Getzville Rd., Amherst, N.Y. 14226

Continuation-in-part of Ser. No. 103,410, Dec. 13, 1979, Pat. No. 4,258,353. This application Mar. 18, 1981, Ser. No. 244,884

Int. Cl.³ B60Q 1/34

U.S. Cl. 340—67 **8 Claims**



1. In combination with an electronic acceleration or deceleration warning system for a vehicle comprising an electromechanical transducer for converting deceleration of the vehicle into an electrical quantity which changes in proportion to the vehicle rate of deceleration, an oscillator for generating a variable frequency output signal, means operatively connected to said transducer and to said oscillator for varying the frequency of said oscillator output signal in proportion to the vehicle rate of deceleration, first and second warning lamps located in horizontally spaced relation on at least one exterior end of the vehicle and operatively connected to said oscillator in a manner such that said lamps flash visibly at a rate determined by the vehicle rate of deceleration:

(a) manually operated switch means having a first state manually selectable to indicate turning of the vehicle in one direction, a neutral state in which no turning is indicated, and a second state manually selectable to indicate turning of the vehicle in another direction; and

(b) circuit means connected to said switch means and to said warning lamps and to said oscillator, said circuit means including means for causing said oscillator to apply a substantially constant frequency signal to said first warning lamp and means for preventing application of said oscillator signal to said second warning lamp when said switch is in said first state, and said circuit means further including means for causing said oscillator to apply a substantially constant frequency signal to said second warning lamp and means for preventing application of said oscillator signal to said first warning lamp when said switch is in said second state.

4,384,270

TURN INDICATOR SYSTEM FOR USE IN AUTOMOBILES

Masayuki Morita, Tokoname, and Tasuku Nakano, Mizunami, both of Japan, assignors to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Aichi, Japan

Filed Dec. 1, 1980, Ser. No. 211,718

Claims priority, application Japan, Nov. 30, 1979, 54/165065[U]

Int. Cl.³ B60Q 1/00

U.S. Cl. 340—73 **11 Claims**

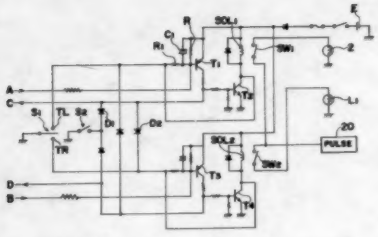
1. In an automobile having first and second turn indicators which are actuated one at a time by a manually operable actuator means, and a turn indicator system for cancelling the actuated one of the first and second turn indicators when a steering wheel shaft of the automobile which has been rotated in one

direction from its neutral position is returned towards the neutral position, said turn indicator system comprising:

a plate member rotatably mounted on, and frictionally engaged to, said steering wheel shaft to cause said plate member to rotate together with said steering wheel shaft;

a contact member rigidly connected to said plate member;

first and second stop members disposed around said steering wheel shaft and spaced a predetermined angle from each other about a longitudinal axis of said steering wheel shaft, said contact member adapted to come into contact with said first and second stop members when said steering wheel is rotated in first and second directions, respectively, said contact member, when forced into contact with any one of the first and second stop members depending on the direction of rotation of the steering wheel shaft, being held motionless in engagement with the corresponding stop member while permitting the continued rotation of the steering wheel shaft;



first and second switch means operatively associated with said first and second stop members, respectively, such that said first and second switch means are actuated by said contact member; and

means for cancelling said first and second turn indicators by the actuation of said second and first switch means, respectively.

4,384,271

TRAFFIC LIGHT

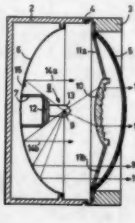
Cornelis A. Visser, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 18, 1980, Ser. No. 160,703

Claims priority, application Netherlands, Jun. 20, 1979, 7904815

Int. Cl.³ B60Q *1/00*; G02B *5/12*

U.S. Cl. 340—119 **1 Claim**



1. A traffic light comprising a parabolic reflector, a light source, and a converging lens, the light source being arranged in the common focal point of the reflector and the lens, the reflector having a depth substantially equal to the focal length thereof, a cover glass, said lens being smaller than said cover glass, said reflector extending over substantially the whole area of said cover glass intermediate said cover glass and said light source, said lens being so dimensioned that substantially all light reflected from the reflector passes therethrough in a direction oblique to the optical axis of said lens, the traffic light further including mounting means for said light source, said mounting means blocking all light from reaching said reflector in a central portion of said reflector, the transverse dimensions of said lens corresponding to the transverse dimensions of said central portion of said reflector, and the focal length of said lens being at least equal to that of said reflector, said lens being directly carried on said cover glass, said cover glass having a periphery, said lens being supported with colorless, transparent supporting spokes which have a constant thickness whereby the emerging light rays are parallel to the corresponding incident light rays, said spokes extending to and connected to the periphery of said cover glass.

4,384,272

IMAGE READING APPARATUS

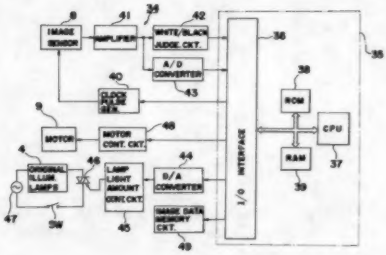
Atsuyuki Tanaka, Shinshiro; Hiroaki Kojima, Toyokawa; Shozo Kaieda, Toyokawa; Tokuzi Kakiuchi, Toyokawa; Nobuaki Nishioka, Toyokawa; Yukio Tadauchi, and Hidekazu Nakagami, both of Toyohashi, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Sep. 22, 1980, Ser. No. 189,943

Claims priority, application Japan, Oct. 6, 1979, 54/129132

Int. Cl.³ G06K *9/00*

U.S. Cl. 382—50 **6 Claims**



1. An image reading apparatus which is arranged to project an image of an original onto a solid state image sensor in which a large number of photoelectric conversion elements are disposed, and to successively read out from respective photoelectric conversion elements, electrical signals corresponding to an amount of light which is received and for providing output signals into binary form corresponding to said electrical signals so as to be stored, said image reading apparatus comprising;

a means for illuminating the surface of said original which is supported on a plate by emitting light;

a marking member movably provided for displacement in a sub-scanning direction along the surface of said plate, said marking member being disposed in a position to be illuminated by said illuminating means and projectable onto said solid state image sensor;

a means for judging said marking member as being projected onto said solid state image sensor, when a particular combination of signals is read out during a reading out of a signal corresponding to a light pattern projected onto said solid state image sensor;

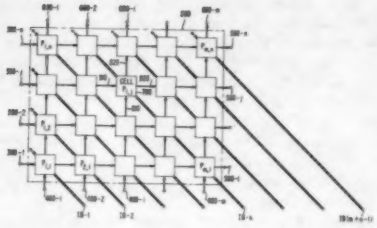
a means for starting the storing of said output of said image sensor as image data upon judgement of said marking; and

a means for controlling an amount of light, said means emitting a signal for controlling said amount of light emitted by said illuminating means by reading a value corresponding to a analog output produced due to the projection of said marking member onto said image sensor when said marking member is judged.

4,384,273
TIME WARP SIGNAL RECOGNITION PROCESSOR FOR MATCHING SIGNAL PATTERNS

Bryan D. Ackland, East Windsor; David J. Burr, Tinton Falls, and Neil H. E. Weste, Eatontown, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Mar. 20, 1981, Ser. No. 245,952
Int. Cl.³ G06K 9/64; G10L 1/00
U.S. Cl. 382—34 10 Claims



1. A method for matching signals, said method including the step of

extending an unknown input signal and a reference input signal through an orthogonal array of processor cells and characterized in that said method further comprises the steps of:

time warping one input signal with respect to the other input signal;

processing said wrapped input signals in processor cells, said cells being coupled to a predetermined diagonal of said array;

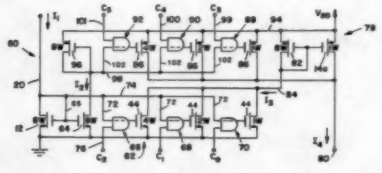
controlling said processing by having all cells coupled to said diagonal of said array concurrently processing said input signals; and

generating during said processing a measure of the correspondence between said input signals.

4,384,274
CURRENT MIRROR DIGITAL TO ANALOG CONVERTER

Roger A. Mao, Cupertino, Calif., assignor to American Microsystems, Inc., Santa Clara, Calif.

Division of Ser. No. 50,961, Jun. 22, 1979, abandoned. This application Sep. 2, 1980, Ser. No. 183,171
Int. Cl.³ H03K 13/03
U.S. Cl. 340—347 DA 13 Claims



1. A digital to analog converter making use of current mirror transistors comprising

a first reference transistor connected to conduct a first reference current;

a selected number of first transistors, each connected to conduct, when activated, a current of a unique value in proportion to said first reference current;

first means to activate one or more of said selected number of first transistors to conduct respective currents of said unique values;

current mirror means to form a sum of the currents conducted by said selected number of first transistors, when activated, and to produce a first summed current which is a selected proportion of said sum;

a second reference transistor for conducting a second reference current;

a selected number of second transistors each connected to conduct, when activated, a current of a unique value in proportion to said second reference current;

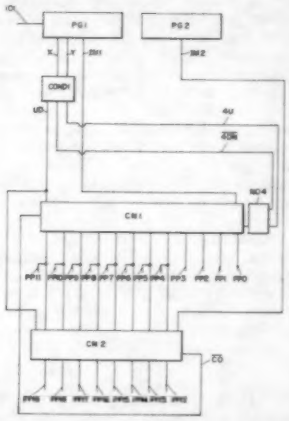
second means to activate one or more of said selected number of second transistors to conduct respective currents of said unique values; and

means to form a sum of said first summed current and the current conducted by said selected number of second transistors, when activated, to produce an output current proportional to a selected digital input signal.

4,384,275
HIGH RESOLUTION AND WIDE RANGE SHAFT POSITION TRANSDUCER SYSTEMS

Marvin Masel, Teaneck; Ralph J. Meehan, Wayne, and Joris Schroeder, Chatham, all of N.J., assignors to Otis Elevator Company, Farmington, Conn.

Continuation of Ser. No. 927,242, Jul. 21, 1978, abandoned, and a continuation of Ser. No. 641,798, Dec. 18, 1975, abandoned. This application Jan. 27, 1981, Ser. No. 228,868
Int. Cl.³ H03K 13/02; G01D 5/34
U.S. Cl. 340—347 P 5 Claims



1. A rotary shaft position transducer for providing a binary representation of the number of revolutions made by a rotatable shaft to which the transducer is connected, comprising:

first and second coded disks having sensible indicia thereon and arranged for mutually related rotation by said shaft so that a first one of said coded disks is rotated an integral number of revolutions for each revolution of said shaft and the second one of said coded disks is rotated an even binary number of, or 2^n, revolutions as said first coded disk is rotated one more than said binary number, or 2^n+1 revolutions, where n is an integer greater than zero;

sensing means related to each disk for sensing the incidia thereon to provide signals indicative of rotation of each disk from a rotational reference position; and

signal processing means interconnected with said sensing means and responsive to the signals corresponding to said first coded disk for providing a binary signal representation of the angular position of said first coded disk, and responsive to the signals corresponding to both of said coded disks to provide, as a function of the difference in the angular positions of said disks indicated thereby, a binary signal representation of the number of revolutions

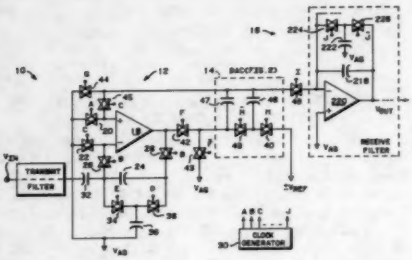
that said first coded disk is rotated from said rotational reference position.

4,384,276

CAPACITIVE DAC TO FILTER INTERFACE CIRCUIT

Stephen H. Kelley, and Richard W. Ulmer, both of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed May 8, 1981, Ser. No. 261,850
Int. Cl.³ H03K *13/02*
U.S. Cl. 340—347 DA **4 Claims**



1. In combination:

capacitive DAC means for capacitively coupling a charge to an output portion thereof in proportion to a voltage coupled to an input portion thereof;

input switching means for coupling the input portion of the capacitive DAC means to a first reference voltage in response to a first enable signal;

filter means for providing an output signal on an output portion thereof at a voltage related to the charge coupled to an input portion thereof;

output switching means for coupling the output portion of the capacitive DAC means to the input portion of the filter means in response to a second enable signal, and to a second reference voltage in response to a third enable signal, and

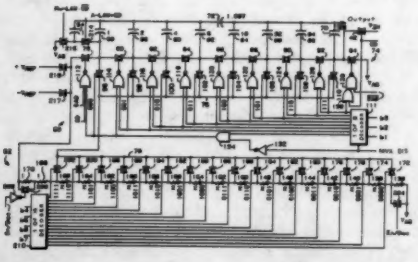
clock generator means for sequentially providing the third enable signal during a discharge period, the second enable signal during a settling period, the first and second enable signals during a sample period, and the first enable signal during a hold period.

4,384,277

DIGITAL TO ANALOG CONVERTER

Robert N. Allgood, and Stephen H. Kelley, both of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed May 8, 1981, Ser. No. 261,852
Int. Cl.³ H03K *13/02*
U.S. Cl. 340—347 DA **14 Claims**



1. In a converter for providing an analog output signal corresponding to a digital input code, comprising:

voltage divider means for providing a step voltage selected between first and second reference voltages in response to the digital input code, comprising:

resistance means coupled between the first and second reference voltages, for developing on each of a rank ordered plurality of step nodes a predetermined step voltage between the first and second reference voltages; and

R ladder switching means coupled between the resistance means and a common rail, for coupling, in response to the digital input code, a selected one of the step nodes to the common rail; and

charge redistribution means coupled to the common rail, for providing the analog output signal as a function of the step voltage on the common rail and the digital input code, comprising: capacitance means comprising a rank ordered plurality of capacitors having respective first plates and interconnected second plates, for developing the analog output signal on the second plates as a function of the voltages coupled to the first plates, wherein the improvement comprises:

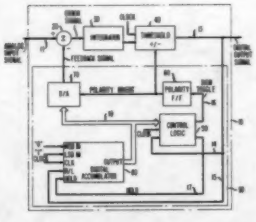
C ladder switching means having a rank ordered plurality of C rung switching elements and a rank ordered plurality of C rail switching elements coupled to the first and second reference voltages, the common rail and each of the first plates of the capacitors, for coupling, in response to the digital input code, the step voltage on the common rail to the first plate of a selected one of the capacitors, the first reference voltage to the first plates of each of the capacitors of lower rank than the selected one of the capacitors, and the second reference voltage to the first plates of each of the capacitors of higher rank than the selected one of the capacitors.

4,384,278

ONE-BIT CODEC WITH SLOPE OVERLOAD CORRECTION

O'Connell J. Benjamin, Marlboro, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jul. 22, 1981, Ser. No. 285,861
Int. Cl.³ H03K *13/22*
U.S. Cl. 340—347 AD **23 Claims**



1. A method for compensating for slope overload in a differential digital pulse code system comprising the steps of:

combining an analog input signal with a reconstructed signal to generate an error signal,

sampling the error signal to produce a digital signal,

generating said reconstructed signal in response to said digital signal,

detecting an occurrence of slope overload, and

reversing the polarity of said reconstructed signal when such occurrence of slope overload is detected.

4,384,279

MODULAR LARGE SCALE IMAGE DISPLAY DEVICE

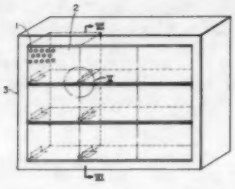
Shozoo Fujita, Nagasaki, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed May 29, 1980, Ser. No. 154,263

Claims priority, application Japan, May 29, 1979, 54-72984[U]

Int. Cl.³ G09G 3/00

U.S. Cl. 340—815.20 6 Claims



1. A large scale display device having a display surface constituted by a number of image display tubes which are arranged lengthwise and breadthwise comprising:

a frame having vertical main posts; and

block-shaped face plates to each of which a number of image display tubes and a control unit are secured to form an assembly, said face plates having horizontal support members;

said assemblies being stacked one on another beginning with a lowest line in said frame and said assemblies being secured to said main posts with said horizontal support members which are provided on the back of each block-shaped face plate.

4,384,280

ANTI-ENTRY DEVICE FOR SURFACES

Gunter Haag, Hessenlauweg 10 B, Stuttgart 80, Fed. Rep. of Germany

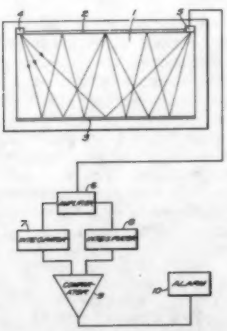
PCT No. PCT/DE80/00085, § 371 Date Feb. 7, 1981, § 102(e) Date Feb. 2, 1981

PCT Filed Jun. 6, 1980, Ser. No. 232,264

Claims priority, application Fed. Rep. of Germany, Jun. 9, 1979, 2923433

Int. Cl.³ G08B 13/18

U.S. Cl. 340—556 11 Claims



1. An anti-entry device for surfaces in which a pair of parallel edges of the surface to be protected are provided with light-reflecting layers which conduct the light coming from a source of light to a receiver which is adapted to generate a signal in response to said light and in which an alarm is given off when said light is disturbed, wherein the light-reflecting layers are formed of elements which reflect an impinging ray of light, independently of its angle of incidence, parallel to the direction of incidence thereof in the plane extending between the layers.

4,384,281

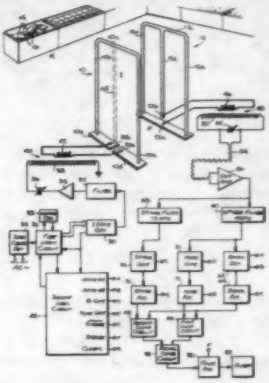
THEFT DETECTION APPARATUS USING SATURABLE MAGNETIC TARGETS

Michael N. Cooper, Flushing, N.Y., assignor to Knogo Corporation, Hicksville, N.Y.

Filed Oct. 31, 1980, Ser. No. 204,005

Int. Cl.³ G08B 13/24

U.S. Cl. 340—572 29 Claims



1. Article theft detection apparatus for signalling the passage of protected articles from a protected area through an interrogation zone, said articles having targets mounted on them in the form of thin elongated strips of easily saturable magnetic material which, when subjected to an alternating magnetic interrogation field in said zone, become repeatedly saturated and produce alternating magnetic response fields at frequencies which are harmonics of the frequency of said interrogation field, said article theft detection apparatus comprising transmitter and receiving antennas positioned across from each other on opposite sides of said interrogation zone, said transmitter antenna being formed of a single turn loop of a high electrical conductivity material, a transmitter connected to drive alternating electrical current in said loop to cause it to generate said alternating magnetic interrogation field in said zone, said receiver antenna being formed of a single turn rectangular outer loop of high electrical conductivity rigid metal pipe having its longer dimension vertical and bisected by a length of high electrical conductivity rigid metal pipe extending vertically along the center of said rectangular loop to form two bucking loops, a receiver connected to receive and detect altrnating currents at a selected one of said harmonic frequencies which flow more heavily in one bucking loop than the other and an alarm connected to operate in response to the reception and detection of said alternating currents by said receiver.

4,384,282

DEVICE FOR INDICATING A FREEZING TEMPERATURE IN A SELECTED LOCATION

Everett G. Dennison, Jr., 200 Glenview Rd., Canfield, Ohio 44406

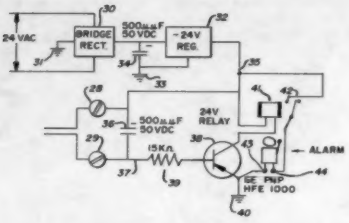
Filed Mar. 23, 1981, Ser. No. 246,300

Int. Cl.³ G08B 21/00

U.S. Cl. 340—580 8 Claims

1. A device for detecting a predetermined freezing temperature in a selected location and comprising an alarm means, an elongated tube, an elongated section of insulating material disposed therein and extending outwardly of said tube, a pair

of spaced electrical conductors positioned longitudinally in said section of insulating material, the ends of said tube being sealed, a liquid in said tube having a known freezing temperature, portions of said insulating material being removed from said electrical conductors so as to expose to said liquid a section of one conductor near one end of said tube and a section of the other conductor near the opposite end of said tube, said electrical conductors connected with said alarm means, said alarm means arranged to initiate an alarm upon ice forming in said liquid.



4,384,283

METHOD AND AN APPARATUS FOR MONITORING THE SUBJECTION OF INDIVIDUAL PEOPLE TO HARMFUL GASES

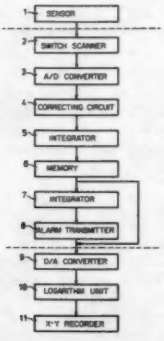
Eckard Drope, Cologne; Karl P. Jansky, Muensing; Wilhelm Pross, Munich, all of Fed. Rep. of Germany, and Wolfram Breuer, deceased, late of Leverkusen, Fed. Rep. of Germany (by Gisela Breuer, Axel W. Breuer, Ingo R. Breuer, executors), assignors to Bayer Aktiengesellschaft, Leverkusen and Compur-Electronic GmbH, Munich, both of, Fed. Rep. of Germany

Filed May 29, 1980, Ser. No. 154,344

Claims priority, application Fed. Rep. of Germany, Jun. 12, 1979, 2924367

Int. Cl.³ G08B *17/10*

U.S. Cl. 340—632 **10 Claims**



1. In a method for monitoring the exposure of an individual person to toxic gases, wherein the gas concentration is continuously measured using a sensor for the specific gas, recorded, and the measured values are then read and evaluated, the improvement comprising the steps of:

(a) periodically scanning instantaneous values of the concentration;

(b) forming temporal mean values of the instantaneous values over a predetermined time interval τ, wherein 50 sec. $\leqq\tau\leqq$150 sec. and τ is greater than the time for each scan;

(c) storing the mean values;

(d) averaging the mean values taken over an interval which is an integral multiple n of τ wherein $2\leqq n\leqq 40$; and

(d) triggering an alarm when a value formed in step (a) exceeds a first predetermined critical value and triggering an alarm when a result of step (d) exceeds a second predetermined critical value.

4,384,284

KEYBOARD OPERATED AUDIO VISUAL SYSTEM

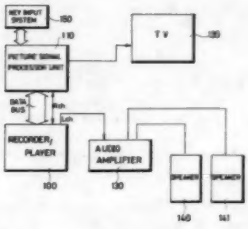
Hiromi Juso, Gose; Shigeki Tsuji, Tenri, and Shigemi Maeda, Sakai, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Mar. 6, 1980, Ser. No. 127,851

Claims priority, application Japan, Mar. 9, 1979, 54-28142

Int. Cl.³ G09G *3/00*

U.S. Cl. 340—706 **24 Claims**



1. An audio visual system comprising:

reproduction system means for developing audio sound information, digital picture data information, and digital operation instruction commands from a recording medium containing a plurality of data sections, each of said data sections having said audio information provided on a first track separate from a second track having said picture data information and operation instruction commands stored thereon, said audio information being recovered from said first track substantially simultaneously with the recovery of said picture data information and said operation instruction commands from said second track;

speaker system means responsive to the audio sound information developed from said reproduction system means for generating audio sound in accordance with said audio sound information developed by said reproduction system means;

video control means responsive to the picture data information and the operation instruction commands developed from said reproduction system means for providing a video signal in accordance therewith;

an image screen for providing a visual image in response to said video signal; and

input means connected to said reproduction system means for selecting a desired one of said data sections stored in said recording medium, said reproduction system being controlled in response to the selection of the desired data section via said input means and in response to said digital operation instruction commands recorded on said recording medium.

4,384,285

DATA CHARACTER VIDEO DISPLAY SYSTEM WITH VISUAL ATTRIBUTES

Nicholas R. Long, Hudson, N.H.; Joseph L. Ryan, Tuscon, Ariz.; John P. Stafford, Nashua, N.H., and Richard R. Watkins, Chelmsford, Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Filed Feb. 19, 1981, Ser. No. 235,808

Int. Cl.³ G09G *1/02*

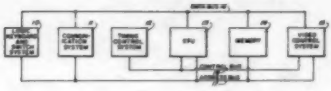
U.S. Cl. 340—723 **3 Claims**

1. A video control system for supplying data characters in

conjunction with visual attributes to video drive logic controlling the operation of a CRT video screen in a video terminal system having a timing control system, said video control system comprising:

random access memory means for storing character address codes at character-address-code addresses and for storing visual attribute codes, there being a visual-attribute-code address associated with each character-address-code address, each visual attribute code comprising attribute control bits and an attribute-change flag bit;

logic memory means responsive to character address codes issued by said random access memory means for providing binary data character codes;



video information stream logic means receiving said binary data character codes from said logic memory means and responsive to clock control signals generated by said timing control system for converting said binary character codes to a serial video bit stream to be applied to said video drive logic; and

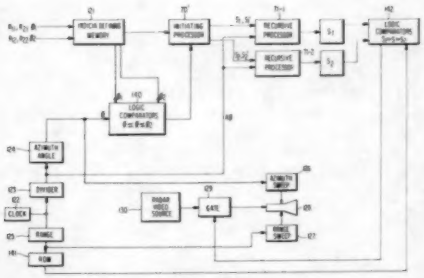
visual attribute logic means for receiving visual attribute codes from said random access memory means and responsive to a character clock control signal issued by said timing control system and to said attribute change flag bit for changing and holding a binary visual attribute code and for supplying said binary visual attribute code to said video drive logic until changed in response to an attribute-change flag bit in a subsequent visual attribute code.

4,384,286

HIGH SPEED GRAPHICS

Michael J. DiToro, Massapequa, N.Y., assignor to General Signal Corp., Stamford, Conn.

Filed Aug. 29, 1980, Ser. No. 182,887
Int. Cl.³ G09G 1/14
U.S. Cl. 340—727 **11 Claims**



1. In a display device for displaying selected indicia on a field swept in a predetermined pattern apparatus for determining coordinates of an ellipse or degenerate forms thereof including:

a processor for generating a sequence of digital signals, each representing a coordinate of said selected indicia in response to indicia selection signals, said processor comprising:

initiating processor means responsive to said indicia selection signals for producing at least one signal representing a first coordinate and a further signal representing a rate of change of at least one component of said first coordinate,

recursive processor means consisting essentially only of adders and shifters with an output of said recursive processor means coupled to an input and responsive to said at least one signal and to said further signal for producing a sequence of digital signals, each representing different coordinates of said selected indicia, each said different coordinates spaced from adjacent coordinates by a predetermined distance, and

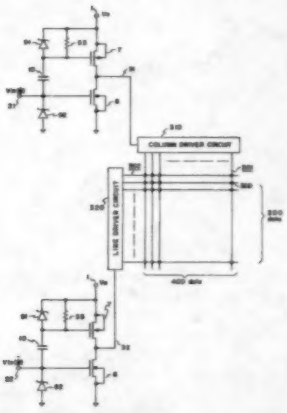
comparator means responsive to said signal sequences from said recursive processor means, and to signals indicative of instantaneous sweep position for illuminating said display field when said sweep is in a position corresponding to a coordinate of said indicia.

4,384,287

INVERTER CIRCUITS USING INSULATED GATE FIELD EFFECT TRANSISTORS

Hiraku Sakuma, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Apr. 11, 1980, Ser. No. 139,267
Claims priority, application Japan, Apr. 11, 1979, 54-44014
Int. Cl.³ G09G 3/28; H03K 19/094
U.S. Cl. 340—771 **18 Claims**



9. A plasma display panel comprising an X-Y matrix of dots arranged in columns and rows; column driver means for selectively energizing any predetermined ones of said columns; line driver means for selectively energizing any one of said rows, whereby the combination of the selective energization of said column and line driver means selects predetermined dots in said matrix; and inverter means individually associated with said column driver means and said line driver means, respectively, for energizing said driver means; each of said inverter means comprising a complementary pair formed by first and second insulated gate field effect transistors connected in series across terminals of a power supply; an output terminal coupled to a junction point between said first and second transistors; a diode coupled between a control electrode of said first transistor and a power supply terminal associated therewith, said diode being poled to clamp said control electrode at a predetermined voltage relative to the voltage of the power supply terminal associated with said first transistor; an input terminal coupled to a control electrode of said second transistor; means including a capacitance means coupled between said control electrode of said first transistor and said input terminal for establishing a time constant at said control electrode of said one transistor; and means for applying to said input terminal an input control pulse which is shorter than said time constant, the capacitance value of said capacitance means being sufficiently larger than the internal capacitance of said first transistor so

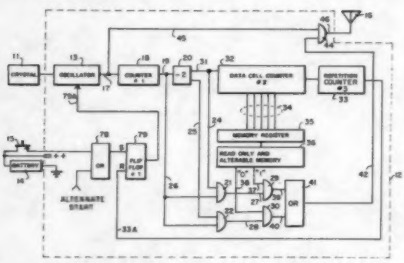
that a potential difference substantially equal to the amplitude of said input control pulse appears between said power supply terminal associated with said first transistor and the control electrode of said first transistor and the voltage at the control electrode of said first transistor becomes lower than the voltage of said power supply terminal associated with said first transistor to the extent that said first transistor may be turned on when said input control pulse goes from a high level to a low level.

4,384,288

PORTABLE RADIO FREQUENCY EMITTING IDENTIFIER

Charles A. Walton, 19115 Overlook Rd., Los Gatos, Calif. 95030

Filed Dec. 31, 1980, Ser. No. 221,720
Int. Cl.³ H04B *1/00*; G08B *3/10*
U.S. Cl. 340—825.34 **5 Claims**



1. An electronic identification system comprising:

a portable identifier having electrical circuits including:

an oscillator for generating a constant frequency signal in the radio frequency range;

a power source for energizing said circuits;

a switching circuit connecting said oscillator to transmit said constant frequency signal;

first circuit means for dividing said constant frequency signal down to a lower data cell rate to generate a lower data cell rate signal;

means to store a predetermined code representing the identification of said identifier, said code consisting of a first series of bits each of which have the value of one or zero;

second circuit means for dividing said data cells of said lower rate signal into equal halves called beginning and ending halves;

means to transmit said predetermined code to said switching circuit;

means causing said switching circuit to conduct during the beginning data cell half if a code bit is one value and to not conduct if of the other value and means to cause said switching circuit to conduct during the ending data cell half if the code is the other value and not to conduct if it is the one value;

means to advance the code through all the bits and thereby cause the switching circuit to conduct and not conduct responsively and thereby generate an identifier signal radiated by said antenna means;

an antenna for radiating said identifier signal to points remote to said identifier;

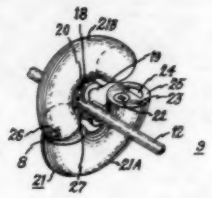
a receiver having an antenna to receive said radiated identifier signal and indicate the identity of said identifier by converting said radio frequency signal back to said predetermined code.

4,384,289

TRANSPONDER UNIT FOR MEASURING TEMPERATURE AND CURRENT ON LIVE TRANSMISSION LINES

Howard R. Stillwell, Pittsfield, Mass., and Roosevelt A. Fernandes, Liverpool, N.Y., assignors to General Electric Company

Filed Jan. 23, 1981, Ser. No. 227,809
Int. Cl.³ G08C *19/00*
U.S. Cl. 340—870.17 **6 Claims**



3. A transponder unit for monitoring the conductor temperature of a power transmission line, said transponder unit comprising, in combination:

A. a toroidal-shaped, conductive housing consisting of two semi-annular housing sections;

B. a cylindrical hub consisting of two semi-annular hub sections;

C. angularly spaced spokes separately interconnecting said hub sections to said housing sections;

D. a hinge mechanism interconnecting said housing sections for swinging movement between a relatively open position to admit a transmission line to the open interior of said hub and a relatively closed position with said hub embracing the transmission line to mount said transponder unit thereon;

E. at least one temperature sensing probe carried by said housing and extending radially through an opening in said hub into thermally coupled relation with the transmission line; and

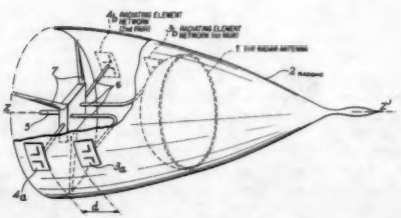
F. electronic signal transmission means accommodated in said housing for wireless communication to a remote location of conductor temperature data obtained by said probe.

4,384,290

AIRBORNE INTERROGATION SYSTEM

Robert Pierrot; Francois Gautier, and Pierre Crochet, all of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Apr. 24, 1980, Ser. No. 143,336
Claims priority, application France, Apr. 26, 1979, 79 10648
Int. Cl.³ G01S *13/86*; H01Q *3/26, 1/42*
U.S. Cl. 343—6 A **15 Claims**



1. An interrogation system, for an airborne radar which includes an antenna enclosed in the aircraft nose protected by a radome, comprising:

an interrogation antenna decoupled from said radar antenna and including a first pair of radiating elements the first and second radiating elements of which are of a same first type and which are arranged laterally on the wall of the aircraft nose, symmetrically with respect to the axis of revolution of the aircraft nose;

means for delivering to said interrogation antenna a microwave interrogation signal and control signal, and

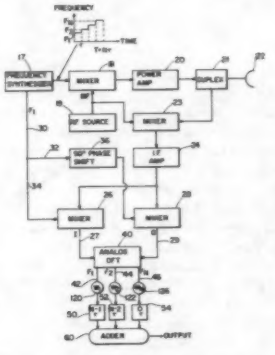
means for switching and phase shifting said interrogation and control signals, said switching and phase shifting means and the first and second radiating elements of the first pair forming an electronic scanning antenna wherein said means for switching and phase shifting the interrogation signal includes a first means for distributing the amplitude, in series with second means for disaiming the radar beam and a third means for controlling said first and second means wherein said third means includes in series a first circuit for coding the information defining the aiming position of the radar antenna and a set of PROM memories containing control information and delivering to the first and second means control signals depending on the aiming of the radar antenna.

4,384,291

EFFICIENT LOW-SIDELOBE PULSE COMPRESSION

Bernard L. Lewis, Oxon Hill, and Frank F. Kretschmer, Jr., Laurel, both of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 15, 1981, Ser. No. 254,311
Int. Cl.³ G01S *13/28*
U.S. Cl. 343—17.2 PC **7 Claims**



1. A pulse compression system for compressing the echo signal returns from the pulse waveforms of electromagnetic energy propagated by a transmitter comprising:

means for receiving an echo signal;

a sliding window discrete Fourier Transform (DFT) circuit comprising:

analog delay means with N signal taps, with a predetermined delay between each pair of adjacent signal taps;

phasor means including a series of resistor-type networks for resistively phase weighting the signals on said N taps to yield N^2 phase weighted signals; and

N adder circuits, each adder circuit adding a particular set of N signals from said N^2 phase weighted signals so that only one frequency may peak at each adder circuit output;

means for applying the echo signal from said receiving means to the delay means of said sliding window DFT circuit without clock sampling;

means for differentially delaying the outputs from said N adder circuits; and

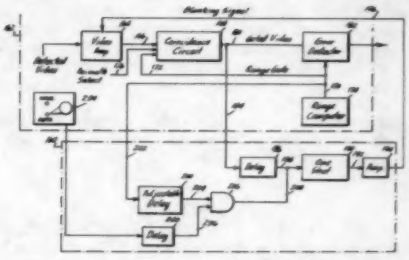
means for adding the differentially delayed outputs from said differentially delaying means to yield a short pulse which will have a peak amplitude when an echo signal is properly indexed in said delay line means of said sliding window DFT.

4,384,292

ELECTRONIC COUNTER-COUNTER-MEASURE DEVICE

Kermit L. Prime, Jr., P.O. Box 54, Astor, Fla. 32002

Filed Aug. 4, 1970, Ser. No. 64,152
Int. Cl.³ G01S *7/36*
U.S. Cl. 343—18 E **8 Claims**



1. In combination with a tracking radar, from which are available video and range gate signals, and having first amplifier means and subsequent error detector means, electronic counter-counter-measure means comprising:

coincidence means for providing an output signal representative of coincidence of the leading edge of true target video and a range gate;

means responsive to the output of said coincidence means for providing a blanking signal delayed with reference to said coincidence;

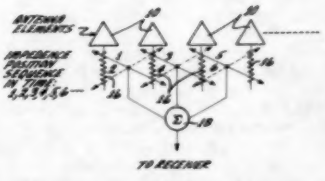
said radar being rendered unresponsive to video received during a predetermined time period following the video upon which the coincidence means has operated.

4,384,293

APPARATUS AND METHOD FOR PROVIDING POINTING INFORMATION

Paul S. Deem, San Pedro, and Paul H. Grobert, Granada Hills, both of Calif., assignors to Magnavox Government and Industrial Electronics Company, Fort Wayne, Ind.

Filed Sep. 18, 1980, Ser. No. 188,368
Int. Cl.³ G01S *5/02*
U.S. Cl. 343—113 R **8 Claims**



1. An apparatus for providing pointing information in accordance with a reference signal produced by at least one GPS satellite, including

a pair of antenna elements for individually receiving the reference signal produced by at least one GPS satellite and for producing output signals in accordance with the received reference signal,

the pair of antenna elements spaced from each other a fixed distance along a line to provide for a difference in phase

between the reference signals as received at one antenna relative to the other antenna in accordance with the pointing angle of the pair of antennas along the line relative to the direction of the GPS satellite,

means responsive to the output signals produced by the pair of antenna elements for producing a phase difference in phase between the reference signals as received at the one antenna relative to the other antenna and wherein the means responsive to the output signals produced by the pair of antenna elements includes means for transferring between the output signal produced by the one antenna and the output signal produced by the other antenna without losing the phase of the reference signal and wherein the means for transferring

includes individual variable impedances in individual output paths from the individual antenna elements and with the variable impedances providing for the output signal from the one antenna element reduced to a minimum while the output signal from the other antenna element is increased to a maximum, and

means responsive to the phase difference signal produced by the last mentioned means for calculating the pointing angle of the pair of antennas along the line.

4,384,294

STABILIZED ANTENNA ARRANGEMENT

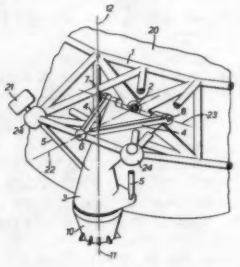
Richard W. Crook, Coalville; Ian Coghill, Leicester Forest East, and David R. James, Tevyford, all of England, assignors to The Marconi Company Limited, Chelmsford, England

Filed May 1, 1981, Ser. No. 259,691

Claims priority, application United Kingdom, May 3, 1980, 8014936

Int. Cl.³ H01Q *1/34, 3/08*

U.S. Cl. 343—709 **10 Claims**



1. A stabilised ship borne antenna arrangement comprising:

a rotatable member arranged to rotate about an unstabilised axis which, in use, is fixed relative to the ship;

a directional antenna mounted on said rotatable member so as to be rotatable therewith;

an azimuth drive linkage arranged to transfer rotational motion from said rotatable member to said antenna, said linkage including at least two pin joints each rotatable about one of two mutually perpendicular axes, one of said at least two pin joints coupling said linkage to said rotatable member, and another of said at least two pin joints coupling said linkage to said antenna;

a multi-axis joint mounting said antenna, the weight of said antenna being substantially wholly transmitted to said rotatable member via said multi-axis joint and said multi-axis joint permitting rotational movement about at least said two mutually perpendicular axes;

two controllable actuators coupled between said rotatable member and said antenna for stabilising the azimuth axis of said antenna against pitch and roll motions of the ship, said actuators being positioned so that when they act in the same sense they cause movement of said antenna about a first predetermined axis, and when said two actuators act in mutually opposite senses they cause movement of said antenna about a second predetermined axis that is perpendicular to said first predetermined axis.

4,384,295

LIQUID JET PRINTING APPARATUS USING A RASTER OF DROPS TO EFFECT PRINTING

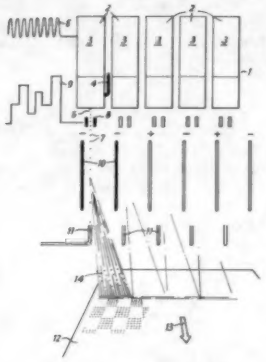
John D. Lewis, Cambridge; Michael R. Keeling, Willingham; Graham D. Martin, Trumpington, and Elaine A. Pullen, Milton, all of England, assignors to Cambridge Consultants Ltd., Cambridge, England

Filed Mar. 23, 1981, Ser. No. 246,219

Claims priority, application United Kingdom, Mar. 26, 1980, 8010102

Int. Cl.³ G01D *18/00*

U.S. Cl. 346—75 **9 Claims**



1. An ink jet array printer adapted to print by depositing small drops of ink in accordance with printing information on a surface to be printed during continuous movement relatively to the apparatus of the surface, comprising one or several rows of ink jet printing guns, each gun having means for supplying printing ink under pressure to an orifice, means for forming regularly spaced drops in the ink stream issuing from the orifice, charge electrode means for charging the drops, means for applying to the charge electrode means, under the control of the printing information, a periodic printing voltage waveform whose period is sufficient to span the formation of a "raster" of consecutively formed drops, drop deflection means for providing transverse to the direction of relative movement of the apparatus and the printing surface a substantially constant electrostatic field through which the drops pass towards the printing surface thereby to deflect electrically charged drops transversely to said direction of relative movement to an extent dependent upon the charge levels on the drops, and drop intercepting means for collecting drops other than those drops charged for printing on the printing surface, the drops charged for printing in the printing guns during each period of the voltage waveform being deposited in respective line sections formed by contiguous drops which sections together present a printed line transversely of the direction of relative movement, the printed lines being formed in contiguity successively at the frequency of the printing voltage waveform applied to the charge electrode means, characterized in that there are provided means for generating the print voltage waveform applied to the charge electrode means of each printing gun which are adapted to provide in said waveform at least two successive sets of voltage levels for application to successively formed drops which arrange the raster drops in a group in time order of drop formation for each set of voltage levels so that corresponding drops in each of the groups formed in the raster, if charged for printing, have similar differences of voltage level and have similarly spaced print locations in the line section of

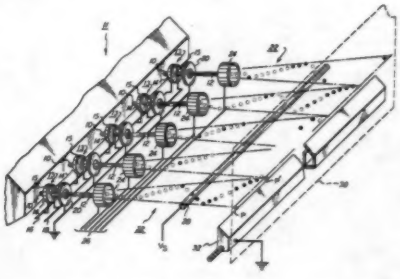
drops printed by the printing gun and the line section is formed along its length at successive locations by corresponding drops from successive groups, and further characterised in that the means for generating the print voltage waveform include first correction voltage evaluating means and second correction voltage evaluating means for correcting the voltage level of the print voltage waveform for application to each drop formed which is charged for printing, of which the first correction voltage evaluating means is adpated to evaluate a correction voltage dependent upon the print status of the drop whose print voltage is to be corrected and the print status of the preceding drop, and, the second correction voltage evaluating means is adapted to evaluate a correction voltage which corrects for the effect of mutual electrostatic and aerodynamic forces of a number of raster drops in accordance with the print status thereof, said raster drops being in the immediate vicinity of the drops whose charging voltage level is to be corrected and being a significant influence on the flight path of that drop, and means are provided for employing the same set of voltages evaluated by the second correction voltage evaluating means for a particular drop for each of the corresponding drops in the groups.

4,384,296

LINEAR INK JET DEFLECTION METHOD AND APPARATUS

Peter A. Torpey, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Apr. 24, 1981, Ser. No. 256,888
Int. Cl.³ G01D *15/18*
U.S. Cl. 346—75 **3 Claims**



1. Ink drop apparatus comprising:

a drop generator for squirting at least one liquid column from a nozzle to form liquid drops at a breakoff region causing said drops to fly toward a target;

a charging electrode located at the drop breakoff region for inducing charges onto drops formed from the liquid column;

drop deflection means for deflecting charged drops;

scanning means having two electrodes positioned on opposite sides of each liquid column for sweeping the column to displace the drops formed at the breakoff region in the direction of sweep; and

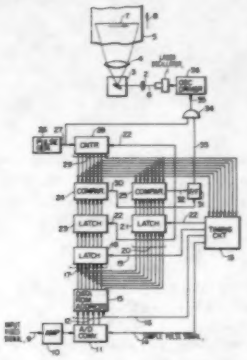
sweep circuit means coupled to the scanning means for applying time varying voltages simultaneously to said electrodes that make the sweep angle directly proportional to the magnitude of the applied voltages, wherein said sweep circuit means includes means for biasing the first and second electrodes with first and second constant potentials and either for adding an equal sweep voltage to both said first and second electrodes or for adding to one and subtracting an equal amount from the other of said first and second electrodes a varying sweep voltage, so that the sweep circuit either maintains the electric field strength between the two electrodes substantially constant or maintains the induced charge on the column in the vicinity of the electrodes substantially constant.

4,384,297

LASER RECORDER REPRODUCING A PICTURE HAVING HALF-TONES OF HIGH ACCURACY

Yuji Ohara, and Masahiro Ohnishi, both of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Apr. 29, 1981, Ser. No. 258,696
Claims priority, application Japan, Apr. 30, 1980, 55-57264
Int. Cl.³ G01D *15/10*
U.S. Cl. 346—108 **8 Claims**



1. A laser recorder comprising: means for sampling an input signal at intervals corresponding to a predetermined sampling period; means for producing a burst of high frequency pulses during said sampling period, the number of said high frequency pulses in said burst being determined in accordance with a sampled value of said input signal sampled by said sampling means, and said high frequency pulses being distributed substantially in equal numbers on either side of a center of said sampling period; and means for generating a laser beam in response to pulses of said burst.

4,384,298

PLOTTER

Lawrence J. LaBarre, Mountain View; Bernard M. Oliver, Los Altos Hills; Charles E. Tyler, Sunnyvale; Dennis C. Thompson, Campbell; Armand P. Neukermans, and Douglass McManigill, both of Palo Alto, all of Calif., assignors to Hewlett Packard Company, Palo Alto, Calif.

Continuation of Ser. No. 200,127, Oct. 24, 1980, abandoned.
This application Mar. 16, 1982, Ser. No. 358,551
Int. Cl.³ G01D *15/16, 15/24*
U.S. Cl. 346—129 **21 Claims**

1. An X-Y plotter system for forming images on a web comprising:

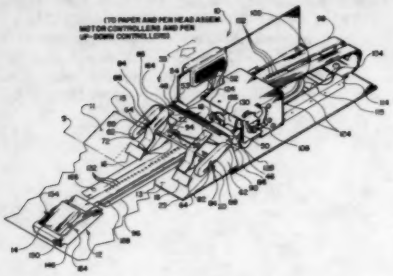
first means being coupled to at least one edge of said web for imparting motion thereto to provide a first degree of motion during plotting onto said web in response to a first applied signal;

second means for forming selected visual images on said web and being movable to provide a second degree of motion in response to a second applied signal; and

third means responsive to a third applied signal for imparting motion to said second means;

said first means including first drive means having at least one powered drive wheel contacting the web, and an idle wheel opposite to each of said drive wheels to form a pinch roller assembly with the web between the drive and the idler wheels, one of said at least one drive and idler wheels having a rough surface, and said drive and idler

wheels additionally being spring biased together to cause the rough surface to make a series of indentations along the driven edge of the web to minimize slippage with these indentations repeatably mating with the rough surface of the drive wheel as the web is driven back and forth, wherein the rough surface on one of said at least one powered drive and idler wheels of the first drive means has a random pattern, size, and height of rough spots.



4,384,299

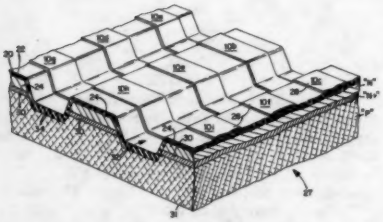
CAPACITOR MEMORY AND METHODS FOR READING, WRITING, AND FABRICATING CAPACITOR MEMORIES

Jack I. Raffel, and John A. Yasaitis, both of Lexington, Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Continuation of Ser. No. 137,432, Apr. 4, 1980, abandoned, which is a continuation of Ser. No. 8,758, Feb. 1, 1979, abandoned, which is a continuation of Ser. No. 737,165, Oct. 29, 1976, abandoned. This application Jan. 4, 1982, Ser. No. 336,856

Int. Cl.³ H01L *29/78, 27/02, 27/10, 27/04*

U.S. Cl. 357—23 **7 Claims**



1. A capacitor memory array comprising

a plurality of isolated capacitor cells arranged in a rectilinear pattern, each capacitor cell being described by a voltage versus capacitance relationship which shifts along a voltage axis under the effect of applied potentials,

each capacitor cell comprising

a plurality of material layers, the layers including at least a first high conductivity layer, a first dielectric insulating layer, a second dielectric insulating layer, a doped semiconductor substrate, and a second high conductivity layer, and

said layers being arranged with said first conductivity layer overlying said first dielectric insulating layer, the first dielectric insulating layer overlying the second dielectric insulating layer, the second dielectric insulating layer overlying the doped substrate, and the doped substrate overlying the second conductivity layer,

a first plurality of interconnection paths, each path interconnecting a group of said first conductivity layers to form isolated first conductivity paths,

a second plurality of interconnection paths, each second path interconnecting a group of said second high conductivity layers to form isolated second conductivity paths,

one each of said first and second conductivity paths uniquely identifying at a crossover position one capacitor cell of said memory array,

said substrate having a doping concentration in a region near said second dielectric insulating layer of between 4×10^{15} and 1×10^{17} impurity atoms per cubic centimeter, said doping concentration having a distribution which is uniform in said substrate, and

means for selectively applying an avalanching potential difference between first and second high conductivity layers for producing avalanche breakdown across selected cell substrate portions adjacent said second dielectric layer.

4,384,300

NEGATIVE RESISTANCE DEVICE

Tetsuya Iizuka, Kawasaki, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

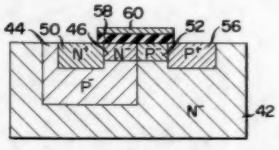
Continuation of Ser. No. 48,368, Jun. 14, 1979, abandoned. This application Apr. 14, 1981, Ser. No. 254,117

Claims priority, application Japan, Jun. 21, 1978, 53-74111; Jun. 21, 1978, 53-74112

The portion of the term of this patent subsequent to Oct. 28, 1997, has been disclaimed.

Int. Cl.³ H01L *27/02*

U.S. Cl. 357—42 **8 Claims**



1. A negative resistance device comprising:

a semiconductor substrate of a first conductivity type;

a first IGFET of a first channel type formed in the semiconductor substrate, the first IGFET having a drain terminal, a source terminal, a gate terminal, a substrate terminal, a drain region, a source region and a channel region; and

a second IGFET of a second channel type formed in the semiconductor substrate, the second IGFET having a drain terminal, a source terminal, a gate terminal, a substrate terminal, a drain region, a source region and a channel region;

both the source terminal and gate terminal of said first IGFET being connected to the source and gate terminals of said second IGFET, the drain terminal of said first IGFET being connected to the substrate terminal of said second IGFET, the drain terminal of said second IGFET being connected to the substrate terminal of said first IGFET, and the drain regions and the channel regions of said first and second IGFETs being formed below a common gate electrode layer and overlapping the common gate electrode layer; and

said first and second IGFETs comprising a first region of a second conductivity type formed in the semiconductor substrate, a second region of the second conductivity type formed in the semiconductor substrate and in contact with the boundary between the semiconductor substrate and the first region, a third region of the first conductivity type formed in the first region and in contact with said boundary, a fourth region of the second conductivity type formed in the semiconductor substrate and disposed in contact with the second region and separated from said

boundary, a fifth region of the first conductivity type formed in the first region and disposed in contact with the third region and separated from said boundary, an insulation layer formed on the surface of the second and third regions, and a common gate electrode layer formed on the insulation layer and overlapping the second and third regions.

4,384,301

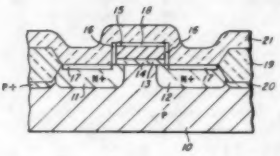
HIGH PERFORMANCE SUBMICRON METAL-OXIDE-SEMICONDUCTOR FIELD EFFECT TRANSISTOR DEVICE STRUCTURE

Al F. Tasch, Jr.; Pallab K. Chatterjee, both of Richardson, Tex., and Horng-Sen Fu, Sunnyvale, Calif., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 92,010, Nov. 7, 1979, abandoned. This application Oct. 9, 1981, Ser. No. 310,200

Int. Cl.³ H01L *29/78*

U.S. Cl. 357—23 **4 Claims**



1. A semiconductor device comprising:

a semiconductor substrate having a first conductivity type;

a source region and a drain region, each having a second conductivity type which is opposite to said first conductivity type, separately disposed within a surface of said substrate, said source and drain regions defining a channel region therebetween;

a gate insulator layer on said channel region;

a gate on said gate insulator layer, said gate including a top surface and sides;

first and second insulating regions at the respective sides of said gate nearest said source and drain regions, said respective insulating regions each comprising a top surface which is approximately at the level of the top surface of said gate;

first and second silicide regions, laterally extended atop said source region and said drain region respectively; and

a thick oxide layer of substantially uniform thickness atop said gate and said insulating regions.

4,384,302

COMPOSITE VIDEO SIGNAL LIMITER

Hans G. Schwarz, Pennington, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Jun. 29, 1981, Ser. No. 278,449

Int. Cl.³ H04N *9/493, 9/535*

U.S. Cl. 358—27 **8 Claims**

1. A limiter for a composite video signal, comprising:

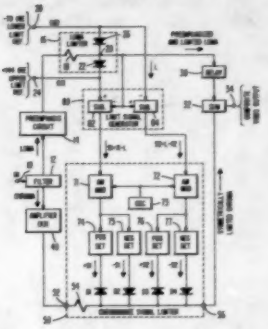
filter means for separating said composite video signal into two components comprising a luminance signal and a chrominance signal;

first limiter means for limiting said luminance signal to a range of values defined by first and second reference signals to provide a limited luminance signal;

circuit means for producing a first control signal having a magnitude proportional to a potential difference between said limited luminance signal and said first reference signal and for producing a second control signal having a magnitude proportional to a potential difference between said limited luminance signal and said second reference signal;

second limiter means for limiting excursions in either sense of said chrominance signal to the lesser of said control signals to provide a symmetrically limited chrominance signal; and

output means for combining said limited luminance signal and said limited chrominance signal to provide a composite video output signal limited to a range defined by said reference signals and in which the chrominance component thereof is symmetrically limited with respect to the level of the luminance component thereof.



4,384,303

ARRANGEMENT FOR DETERMINING THE WIDTH OF ROLLING MILL PRODUCTS

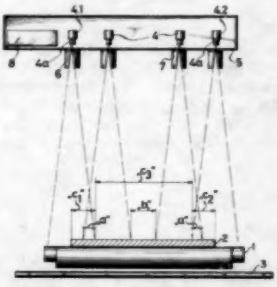
Manfred Brenke; Jürgen Ihlefeldt; Hermann-Josef Kopineck, and Wilhelm Tappe, all of Dortmund, Fed. Rep. of Germany, assignors to Hoesch Werke Aktiengesellschaft, Dortmund, Fed. Rep. of Germany

Filed Mar. 21, 1979, Ser. No. 22,608

Claims priority, application Fed. Rep. of Germany, May 3, 1978, 2819395

Int. Cl.³ H04N *7/18*

U.S. Cl. 358—107 **11 Claims**

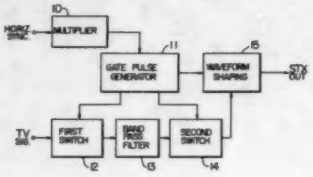


1. A method for continuous, quasi-static and contactless width measurement on hot rolled products within a rolling mill train, comprising the steps of: projecting two side edges of an illuminated mill product on diode line cameras, measuring a position of illuminated edges of the rolled mill product via alternating-current-supplied lamps in successive measuring cycles of predetermined time intervals; scanning electrical charge of diodes immediately following exposure within a measuring cycle of predetermined time interval, said scanning being at maximum intensity of illumination of said lamps, said scanning dependent on the frequency of current supplied to said lamps, intensity of said lamps being monitored to maintain the measurement cycle at maximum brightness.

4,384,304
APPARATUS FOR RECEIVING MULTIPLEX INFORMATION SIGNAL

Masutomi Ohta, and Minoru Sakai, both of Yokohama, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jun. 1, 1981, Ser. No. 269,509
Claims priority, application Japan, Jun. 2, 1980, 55-72770
Int. Cl.³ H04N 7/08
U.S. Cl. 358—147 7 Claims



1. A method of receiving and detecting a start pulse signal added in a multiplex information signal, comprising the steps of:

(a) obtaining a multiplied-frequency signal synchronized with a horizontal synchronizing signal in a transmitted television signal and having a frequency N times equal to or higher than a horizontal synchronizing frequency, where N is a positive integer;

(b) generating first and second gate signals from said multiplied-frequency signal in such a manner that said first gate signal is larger in gate width than said second gate signal;

(c) extracting said start pulse signal by said first gate signal, said start pulse signal being a binary signal provided at the beginning of an information signal multiplexed in the vertical blanking period of said television signal;

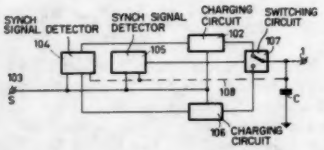
(d) filtering an extracted pulse signal by filter means having a center frequency equal to a frequency of a reference start pulse signal; and

(e) extracting a waveform pulse from a central part of a filtered pulse signal by said second gate signal, and providing the resulting waveform pulse as a start pulse for bit synchronization.

4,384,305
CIRCUIT ARRANGEMENT FOR GENERATING A SYNCHRONIZABLE SAWTOOTH VOLTAGE

Paul Sonnenberger, Hamburg, Fed. Rep. of Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jul. 7, 1980, Ser. No. 166,284
Claims priority, application Fed. Rep. of Germany, Jul. 13, 1979, 2928264
Int. Cl.³ H04N 5/04
U.S. Cl. 358—158 11 Claims



1. A circuit arrangement for generating a sawtooth-shaped voltage across a capacitor comprising:

charging current means connected to said capacitor for charging said capacitor until a first threshold voltage is reached and discharging current means connected to said capacitor for subsequently discharging said capacitor until a second threshold voltage is reached,

means connected to said charging and discharging means for measuring and controlling the capacitor voltage,

means connected to said capacitor for switching said charging and discharging current means, respectively, at the instant a threshold voltage is reached, the free-running frequency of the sawtooth voltage thus produced being determined by the difference between said first and second threshold voltage at a constant charging and discharging current and by the intensity of said charging and discharging current, respectively, at a constant difference between said first and second threshold voltage,

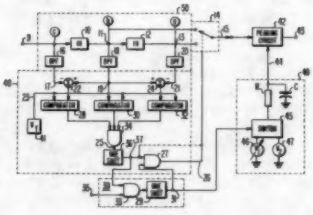
the circuit arrangement comprising further a source of synchronizing pulses connected to said circuit, and

a synchronizing signal detector connected to said current charging and discharging means for establishing the presence and the frequency of synchronizing pulses having a substantially constant nominal repetition frequency, whereby at least one of the two switching instants of the capacitor charging operation can be determined by means of said synchronizing pulses, the sawtooth voltage being thus synchronizable by means of said synchronizing pulses, and whereby it is established by means of said synchronizing signal detector whether the repetition frequency of said synchronizing pulses corresponds with a first lower or a second higher value, at which second frequency value the charging current and/or the discharging current of said capacitor is increased in such a way that the amplitude of the sawtooth voltage is substantially the same for both frequencies.

4,384,306
VARIABLE PEAKING CONTROL CIRCUIT

Frank C. Liu, Phoenix, Ariz., assignor to RCA Corporation, New York, N.Y.

Filed Jun. 22, 1981, Ser. No. 276,010
Int. Cl.³ H04N 5/14
U.S. Cl. 358—166 7 Claims



1. A circuit combination for processing a composite video signal, comprising:

a video signal peaking circuit responsive to said composite video signal and having a peaking control signal input terminal for applying a peaking control signal to control the degree of peaking;

first circuit means responsive to the unpeaked composite video signal for detecting impulse noise above a threshold level in blanking intervals of said composite video signal and for generating a further control signal having a duration of at least a video field period whenever said impulse noise is detected;

a first source of peaking control signal;

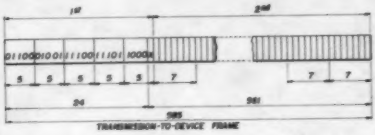
a second source of peaking control signal; and

second circuit means responsive to said further control signal for selectively coupling said first source of peaking control signal to said control input terminal for a duration of at least one video field period and responsive to the absence of said further control signal for coupling said second source of peaking signal to said control input terminal.

4,384,307
FACSIMILE COMMUNICATIONS INTERFACE ADAPTER

Paul T. Kuzmik, Gaithersburg, Md., and Leo J. Cotta, Springfield, Va., assignors to Inteq, Inc., Fairfax, Va.

Filed Aug. 28, 1979, Ser. No. 70,292
Int. Cl.³ H04N 1/40
U.S. Cl. 358—257 **21 Claims**



1. In a communications adapter for interfacing a facsimile transceiver with a communications line comprising controller means for controlling the operation of the adapter, storage means for storing instruction and data to be used by said controller means, facsimile input-output port, a line input-output port, and logic means controlled by said control means for interfacing said facsimile and line ports, the improvement being said logic means which comprises:

a receiver/transmitter means programmable by said controller means for interfacing said facsimile and line ports;

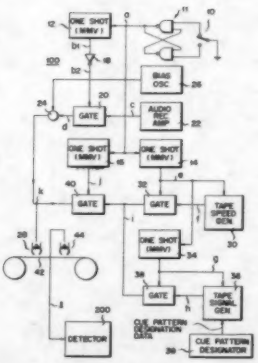
synchronization means programmable by said controller and responsive to signals from said receiver/transmitter means for providing a signal to coordinate the transmission and reception of a facsimile transmitter/receiver on said facsimile port with the interface adapter on the bit level; and

said storage means including instructions to program said receiver/transmitter means and said synchronization means.

4,384,308
APPARATUS FOR RECORDING AND DETECTING A CUE SIGNAL

Tuneo Yanagida, Hino, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Jul. 10, 1980, Ser. No. 168,197
Claims priority, application Japan, Aug. 23, 1979, 54/107513
Int. Cl.³ G11B 5/00, 5/02, 15/18
U.S. Cl. 360—8 **29 Claims**



1. In a data recording and playback apparatus wherein data is recorded in a recording medium and selectively played back, apparatus for recording and detecting a cue signal comprising:

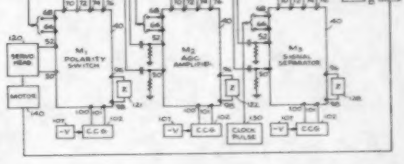
recording means for recording a composite cue signal in the recording medium of the recording and playback apparatus, said composite cue signal including a first specified data pattern and a second specified data pattern which occurs in time after said first specified data pattern, data on said first specified data pattern being supplied and recorded before the data on said second specified data pattern; and

detecting means for detecting a cue signal data pattern reproduced from said recording medium, said cue signal data pattern including signals corresponding to said first and second specified data patterns, said detecting means including means responsive to the detected signal corresponding to said first data pattern for compensating the contents of said second specified data pattern in accordance with the contents of said first specified data pattern to thereby produce a signal corresponding to said original recorded composite cue signal when said composite cue signal is reproduced.

4,384,309
CLOSED LOOP SERVO DEMODULATOR FOR POSITIONING A SERVO HEAD

Avraham Perahia, San Jose, Calif., assignor to Pertec Computer Corporation, Los Angeles, Calif.

Division of Ser. No. 13,038, Feb. 21, 1979, Pat. No. 4,301,416.
This application Mar. 30, 1981, Ser. No. 248,992
Int. Cl.³ G11B 21/10, 5/58
U.S. Cl. 360—77 **2 Claims**



1. A closed loop servo demodulator for positioning a servo head over respective even or odd-numbered tracks on a magnetic disk comprising:

a first, second and third transconductance balanced modulator each having input signal terminals, control signal terminals, and output signal terminals;

means for applying a position indicating signal from said servo head to said first modulator input signal terminals;

means for generating a polarity control signal in accordance with whether said servo head is to be positioned respective an even-numbered track or an odd-numbered track;

means for applying said polarity control signal to said first modulator control signal terminals;

means for configuring said first modulator as an amplifier and a polarity switch thereby providing an output signal proportional to said position-indicating signal and having a polarity in accordance with said polarity control signal;

means for applying the output signal of said first modulator to said second modulator signal input terminals;

means for applying an AGC voltage to said second modulator control signal terminals;

means for configuring said second modulator as an AGC amplifier thereby providing an output signal proportional to said AGC voltage;

means for generating a clock pulse having first and second voltage states;

means for applying said second modulator output signal to said third modulator signal input terminals;

means for applying said clock pulse to said third modulator control signal terminals;

means for configuring said third modulator to provide first and second output signals so that said first output signal is

proportional to said second modulator output signal during time periods corresponding to said clock pulse having said first voltage state and said second output signal is proportional to said second modulator output signal during time periods corresponding to said clock pulse having said second voltage state;

a first peak detector having an input signal comprising said third modulator first output signal and an output voltage proportional to a peak voltage of said input signal;

a second peak detector having an input signal comprising said third modulator second output signal and an output voltage proportional to a peak voltage of said input signal;

means for summing output voltages of said first and second peak detectors, said summed voltages comprising said AGC voltage;

a servo head positioning means responsive to a control signal input; and

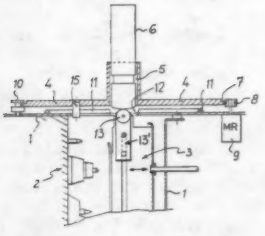
means for generating a difference voltage by subtracting said second peak detector output voltage from said first peak detector output voltage said difference voltage comprising said control signal input to said servo head positioning means.

4,384,310

CASSETTE CHANGER APPARATUS

Etienne A. M. Schatteman, and Luigi Agostini, both of Brussels, Belgium, assignors to Starr S. A., Belgium

Filed May 16, 1980, Ser. No. 150,365
Claims priority, application France, May 21, 1979, 79 13716
Int. Cl.³ G11B *15/68*
U.S. Cl. 360—92 **21 Claims**



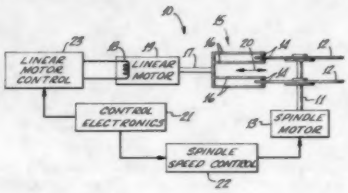
1. In a machine having mechanism for recording and/or playing back information on magnetic tape contained in a cassette when loaded in an operative position, upon movement of the tape in a single direction; cassette changer apparatus comprising (1) cassette storage means including a magazine having a compartment for storing a cassette and (2) cassette loading apparatus for transporting a cassette to and from said compartment in said magazine and said operative position; said machine including a chassis and a rotatable turntable on said chassis for said magazine, and (3) means for rotating said turntable and magazine one-half revolution about an inverting axis for a cassette in said compartment of said magazine to position both sets of recording tracks on tape in the cassette for use with said mechanism upon transport of the cassette from said compartment of said magazine to the operative position in said machine by said loading apparatus.

4,384,311

METHOD FOR CLEANING THE DISC SURFACE AND THE HEAD SUPPORT STRUCTURE IN A MAGNETIC DISC DRIVE

Michael McNeil, Lompoc, Calif., assignor to DMA Systems Corporation, Santa Barbara, Calif.

Filed Oct. 13, 1981, Ser. No. 310,747
Int. Cl.³ G11B *5/10, 5/12, 5/41*
U.S. Cl. 360—128 **10 Claims**



1. In a disc drive including a disc having a magnetic surface and supported for rotation on a spindle, a spindle motor for driving said spindle, a transducer head, a head support structure, a drive motor coupled to said head support structure for moving said head along said disc surface, and control means for controlling said drive motor and the speed of said spindle motor, a method for cleaning said disc surface and said head comprising the steps of:

loading and flying said head on said disc surface;

reducing said spindle motor speed to a speed where said head flies at a first predetermined percentage of the normal flying height;

moving said head across said disc surface;

positioning said head at a predetermined location on said disc surface;

reducing said spindle motor speed to a speed where said head flies at a second predetermined percentage, lower than said first predetermined percentage, of said normal flying height; and

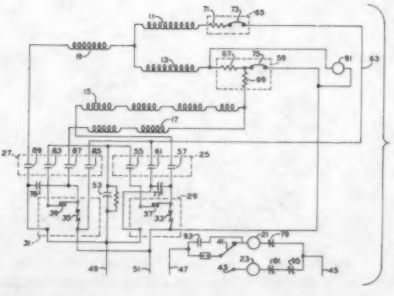
increasing said spindle motor speed to a speed where said head flies at said normal flying height.

4,384,312

LINE BREAK PROTECTION FOR MULTISPEED MOTOR

Emanuel D. Fry, Tecumseh, Mich., assignor to Tecumseh Products Company, Tecumseh, Mich.

Filed Jul. 29, 1981, Ser. No. 288,108
Int. Cl.³ H02H *7/085*
U.S. Cl. 361—24 **22 Claims**



22. A single phase two speed pole changing motor having two sections of main winding operable in each of two speed determining pole configurations, a pair of auxiliary windings having different pole numbers each for facilitating start up of

the motor in the corresponding selected pole configuration, a first line break motor protector operable in either pole configuration to be responsive to an overload condition to interrupt current flow through the selected auxiliary winding and through one of the main winding sections, and a second line break motor protector operable in either pole configuration to be responsive to an overload condition to interrupt current flow through the other main winding section.

4,384,313

PROCESS FOR DEMAGNETIZING COMPONENTS BY ALTERNATING MAGNETIC FIELDS OF VARYING INTENSITY

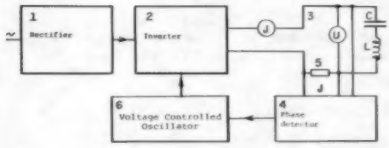
Erich Steingroever, Flensburger Strasse 33, 53 Bonn, and Dietrich Steingroever, Bergisch, Gladbach, both of Fed. Rep. of Germany

Filed Feb. 12, 1981, Ser. No. 233,773

Claims priority, application Fed. Rep. of Germany, Feb. 16, 1980, 3005927

Int. Cl.³ H01F *13/00*

U.S. Cl. 361—149 **26 Claims**



1. In a process for the demagnetization of components subjected to the influence of an alternating magnetic field of a coil connected with capacitor means in an oscillator circuit supplied by an alternating voltage means, comprising the steps of:

(a) placing a component to be demagnetized in the vicinity of said coil to be subjected to an alternating magnetic field generated by said coil;

(b) varying the phase between voltage and current of the oscillator circuit to produce a control voltage to bring the frequency of the supplied voltage from a non-resonant frequency to the resonant frequency of the oscillator circuit, and;

(c) thereafter reducing the intensity of the alternating magnetic field to which said component is subjected.

4,384,314

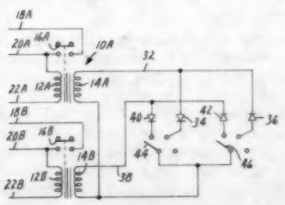
CONTROL SYSTEM FOR PLURAL TRANSFORMER RELAYS

Charles T. Doty, Troy Township, St. Croix County, Wis., and Douglas R. Mosier, White Bear Lake, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Apr. 30, 1981, Ser. No. 259,183

Int. Cl.³ H01H *9/00*

U.S. Cl. 361—160 **9 Claims**



1. An electrical isolation network for controlling a plurality of transformer relays, each of said plurality of transformer relays having a primary winding adapted to be coupled to a source of power, having a secondary winding and having a plurality of states controllable from at least one switch adapted to be coupled to said secondary winding, comprising an array of nonlinear semiconductor devices selectively coupled to said secondary winding of each of said plurality of transformer relays and a pair of common control lines coupled to said at least one switch, with said nonlinear semiconductor devices and said common control lines providing electrical isolation for each of said transformer relays and providing the capability of controlling said plurality of transformer relays to an individually predetermined one of said plurality of states.

4,384,315

PHOTOGRAPHIC FLASH DEVICE FOR USE WITH A SHADOWLESS LAMP FOR SURGICAL OPERATION

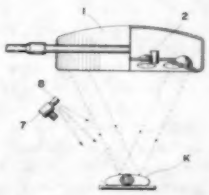
Yoshito Hayakawa, Kohnosu, Japan, assignor to Yamada Iryo Shomei Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 18, 1981, Ser. No. 293,986

Claims priority, application Japan, Oct. 31, 1980, 55-154871[U]; Feb. 18, 1981, 56-20561[U]

Int. Cl.³ G03B *15/05;* **F21V** *33/00, 13/12*

U.S. Cl. 362—33 **8 Claims**



1. A flash device positioned in a lamp housing of a shadowless lamp and for use with a camera located outside of the lamp housing which has a stroboscopic light unit positioned therewith, said flash device comprising:

a light emission means for illuminating a field of which a photograph is to be taken;

a power supply means operatively associated with said light emission means for providing power thereto;

a light receiving means operatively associated with said power supply means for activating said power supply means in response to receiving an illumination by a flash of light from the stroboscopic light unit;

a focusing light reflection means operatively associated with said light receiving means for focusing direct and reflected light from the stroboscopic light unit to a focal point and thereby allowing said light receiving means to receive illumination by a flash of light from the stroboscopic light unit; and

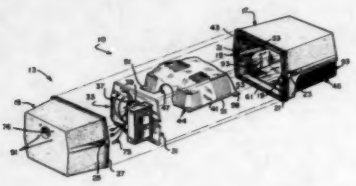
a light shielding means operatively associated with said light receiving means for preventing reflected light from the shadowless lamp from being received by said light receiving means and thereby preventing the activation of said power supply means in response to illumination by light from the shadowless lamp.

4,384,316

OUTDOOR LUMINAIRE WITH READILY SEPARABLE, TWO-PART HOUSING

Hendrik A. J. de Vos, and Elzear R. Labouliere, both of Swansea, Mass., assignors to GTE Products Corporation, Stamford, Conn.

Filed Mar. 4, 1981, Ser. No. 240,341
Int. Cl.³ F21S 1/02
U.S. Cl. 362—147 **14 Claims**



1. A luminaire comprising:

a housing member including a substantially boxlike first part for being secured to a wall or pole and a substantially boxlike second part attached to said first part and readily removable therefrom, each of said parts defining a planar open end portion and being attached along said open end portion, said second part of said housing being of unitary construction and including a substantially opaque chamber portion and a prismatic light-transmitting lens portion located adjacent said chamber portion;

a reflector located within said substantially opaque chamber portion of said second part of said housing and readily removable from within said chamber portion when said second part of said housing is separated from said first;

a lamp located within said second part of said housing and projecting within said reflector, said reflector reflecting light from said lamp onto said prismatic lens portion of said second part of said housing; and

a substantially planar component mounting plate releasably secured to said boxlike first part of said housing and providing a cover for said planar open end portion thereof, said mounting plate having lamp ballast components secured thereto on a first side thereof and a socket having said lamp positioned therein located on a second side thereof opposite said first side such that said ballast components are located within said first part of said housing and said lamp is accurately oriented within said second part of said housing relative to said reflector when said mounting plate is releasably secured to said first part and said second part is attached to said first part.

4,384,317

SOLAR POWERED LIGHTING SYSTEM

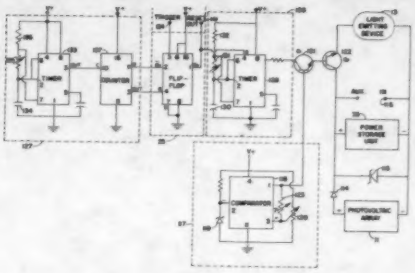
Edward J. Stackpole, San Antonio, Tex., assignor to John R. Hart, San Antonio, Tex.

Filed Nov. 1, 1979, Ser. No. 90,322
Int. Cl.³ F21L 7/00
U.S. Cl. 362—183 **8 Claims**

1. A solar powered lighting system comprising:

a plurality of photoemitting semiconductor means for emitting visible light upon application of a potential;

a rechargeable power supply means operably connected to said photoemitting semiconductor means for applying a potential to said photoemitting semiconductor means;



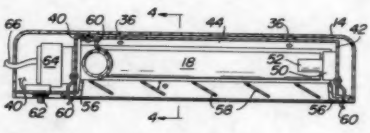
solar powered means operably connected to said power supply means and said solar powered means operate at approximately same potential.

4,384,318

TASK LIGHT

Robert L. Reibling, Ft. Thomas, Ky., assignor to Kidde Consumer Durables Corp., Bala Cynwyd, Pa.

Filed Dec. 24, 1980, Ser. No. 219,789
Int. Cl.³ F21S 5/00
U.S. Cl. 362—216 **7 Claims**



1. A task light fixture comprising:

(a) a housing having an open bottom;

(b) a chassis supported in said housing, said chassis including a reflector comprising a series of angular stepped sections arranged for directing lumen output in zonal segments for vertical and lateral distribution;

(c) a light source supported in said chassis beneath said reflector; and

(d) a louver assembly adjacent said open bottom of said housing for directing portions of the lumen output of said light source in a plurality of inclined planes.

4,384,319

PROJECTION LIGHTING UNIT WITH REAR LOADING LAMP CAPSULE MEMBER

Ronald G. Blaisdell, Saugus; Harold L. Hough, Beverly, and C. Edward Kowalski, Marblehead, all of Mass., assignors to GTE Products Corporation, Stamford, Conn.

Filed Dec. 18, 1980, Ser. No. 217,627
Int. Cl.³ F21V 7/00
U.S. Cl. 362—296 **11 Claims**

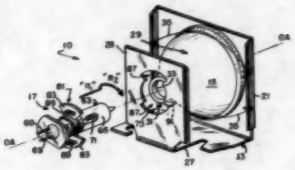
1. In combination, a projection lighting unit comprising:

a bracket member including an apertured faceplate portion and a rear upstanding portion, said faceplate portion including at least one upstanding member located relative to the aperture within said faceplate portion;

a glass reflector having a concave reflecting portion including an internal surface therein located in fixed relationship to the optical axis of said reflector, and a rear neck portion positioned adjacent said reflecting portion and having an opening therein, said upstanding member of said faceplate portion engaging said internal surface of said glass reflector in a close fit relationship to align said reflector with

said aperture within said faceplate portion, said optical axis of said reflector passing through the central axis of said opening within said rear neck portion of said reflector and the central axis of said aperture within said faceplate portion of said bracket member, the focal point of said reflecting portion of said reflector lying along said optical axis;

a lamp capsule member removably positioned within said opening of said rear neck portion of said glass reflector for being removed through said rear neck portion, said lamp capsule member including an incandescent projection lamp having an envelope portion and a sealed end portion adjacent said envelope portion, said envelope portion



having a filament structure therein, and a base component fixedly secured to said sealed end portion of said lamp; and

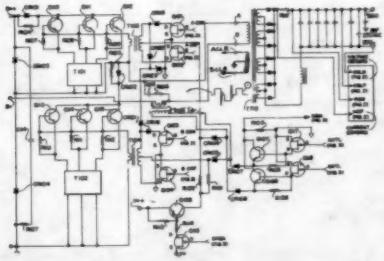
biasing means positioned on said base portion of said removable lamp capsule member for engaging said rear upstanding portion of said bracket member to continuously bias said lamp capsule member toward said faceplate portion of said bracket member whereby said envelope portion of said lamp capsule member will be aligned within said concave reflecting portion of said glass reflector in a predetermined number of alignment such that said filament will be located along said optical axis of said reflector and will coincide with said focal point when said removable lamp capsule member is positioned within said opening of said rear neck portion of said glass reflector.

4,384,320

PUSH-PULL SWITCHING MODE INVERTER-TYPE POWER SUPPLY

Stephen H. Incledon, Glendora, and Bruce L. Wilkinson, Torrance, both of Calif., assignors to Pioneer Magnetics, Inc., Santa Monica, Calif.

Filed Jan. 25, 1982, Ser. No. 342,466
Int. Cl.³ H02M *3/335*
U.S. Cl. 363—25 **10 Claims**



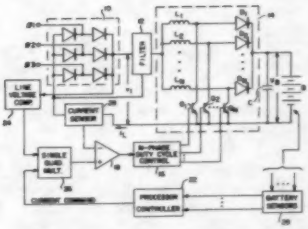
1. In a push-pull switching mode inverter-type power supply which includes an electromagnetic storage device and first and second switching transistors connected to the storage device for cyclically storing electrical energy in the storage device and releasing the energy into a load, said switching transistors introducing electrical energy into the electromagnetic storage device having positive halfcycles and negative half-cycles and further having a transition time between each of said half-cycles, a drive system for said switching transistors for alternately turning said switching transistors on and off, said drive system including: first and second switching circuits coupled to the first switching transistors respectively serving to turn the first switching transistors on and off; third and fourth switching circuits coupled to the second switching transistors respectively serving to turn the second switching transistors on and off; control circuitry connected to said first and second switching circuits and to said third and fourth switching circuits for supplying two distinct control signals to said first and second switching circuits and two distinct control signals to said third and fourth switching circuits to cause each of said first and second switching transistors cyclically to turn on and turn off, and with the first and second switching transistors being rendered conductive in alternate cycles.

4,384,321

UNITY POWER FACTOR SWITCHING REGULATOR

Wally E. Rippel, Altadena, Calif., assignor to California Institute of Technology, Pasadena, Calif.

Continuation-in-part of Ser. No. 144,834, Apr. 29, 1980. This application Mar. 4, 1981, Ser. No. 240,453
Int. Cl.³ H02M *7/00*
U.S. Cl. 363—124 **17 Claims**

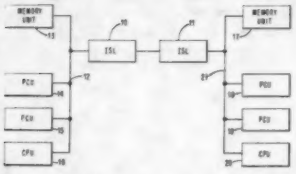


1. A single or multiphase chopper for operating a load from single or multiphase line energy with unity power factor, comprising a power section for converting single or multiphase alternating current line energy into direct current load energy including a rectifier, and for each chopper phase at least one inductor and one chopper switch for presenting said load with direct current, and duty cycle control mean for each chopper switch to control the average inductor current over each period of the chopper switch, and a sensing and control section including means for sensing at least one load parameter, means for producing a current command signal as a function of said parameter, means for sensing average current through every inductor included, means for producing a feedback signal as a function of said current command signal and the average rectifier voltage output over each period of every chopper switch included, and means for comparing said feedback signal with said sensed average current to produce, in response to a difference, a control signal applied to said duty cycle control means, whereby the instantaneous line current is maintained proportionate to the instantaneous line voltage, thus achieving a unity power factor.

4,384,322
ASYNCHRONOUS MULTI-COMMUNICATION BUS SEQUENCE

Kenneth E. Bruce, Nashua, N.H.; Ralph M. Lombardo, Jr., Lowell, Mass.; Bruce H. Tarbox, Billerica, Mass., and John W. Conway, Waltham, Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Continuation of Ser. No. 956,388, Oct. 31, 1978, abandoned.
This application Jan. 7, 1980, Ser. No. 109,910
Int. Cl.³ G06F *3/04*
U.S. Cl. 364—200 **21 Claims**



1. An intersystem communication control system electrically connecting plural communication busses in a data processing system wherein each of said plural communication busses provides a common information path to plural data processing units including memory units, peripheral control units, central processing units and intersystem link units (ISLs) for accommodating simultaneous bidirectional binary coded information transfers between a local one of said plural communication busses and a remote one of said plural communication busses, which comprises:

(a) local bus control logic means in a local one of said ISL units in electrical communication with said local bus and responsive to a BSDCNN signal on said local bus for identifying those bus cycle requests received from said local bus for which said local ISL unit shall respond;

(b) local cycle control logic means responsive to activity bit control signals from said local ISL unit and a remote one of said ISL units in electrical communication with said remote bus for controlling the transfer of local binary coded information received from said local bus and said remote bus to said remote ISL unit and routing through said local ISL unit binary coded information received from said remote ISL unit;

(c) local ISL interface register means responsive to said local cycle control logic means for storing said local binary coded information for transfer to said remote ISL unit, thereby freeing said local cycle control logic means for receiving remote binary coded information from said remote ISL unit to effect a simultaneous bidirectional information transfer;

(d) remote bus control logic means in said remote said ISL unit responsive to a BSDCNN signal on said remote bus for identifying those bus cycle requests received from said remote bus for which said remote ISL unit shall respond;

(e) remote cycle control logic means responsive to activity bit control signals from said local ISL unit and said remote ISL unit for controlling the transfer of remote binary coded information received from said local bus and said remote bus to said local ISL unit and routing through said remote ISL unit said local binary coded information received from said local ISL unit; and

(f) remote ISL interface register means responsive to said remote cycle control logic means for storing said remote binary coded information for transfer to said local ISL unit, thereby freeing said remote cycle control logic means for receiving said local binary coded information from said local ISL unit to effect a simultaneous bidirectional information transfer.

4,384,323
STORE GROUP BUS ALLOCATION SYSTEM

Sudhir R. Ahuja, Aberdeen, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Feb. 25, 1980, Ser. No. 124,426
Int. Cl.³ G06F *9/18*
U.S. Cl. 364—200 **1 Claim**

1. A store group resource allocation arrangement distributed among a plurality of devices for systematically controlling access of the devices to a common resource, the arrangement including means (**101***a*), included in each of said devices, for generating a request signal (REQA), store group circuit means (**202***a*), associated with each of said devices, responsive to the request signal for storing the request signal and for generating an arbitration enabling signal (ENABLA), and an arbiter (**103**) responsive to the arbitration enabling signal for generating a corresponding access grant signal (GRANTA) according to a prescribed criterion, the arrangement characterized by,

a source of a clock signal having first and second states, and

the store group circuit means associated with each of said devices being comprised of first memory means jointly responsive to the request signal and the clock signal for storing the request signal at a time instant corresponding to the coincidence of the presence of the request signal and the clock signal changing from the first state to the second state and for generating a first memory element output signal (EA-**1**) upon storage of the request signal in the first memory means, and second memory means jointly responsive to the request signal and the clock signal for storing the request signal at a time instant corresponding to the coincidence of the presence of the request signal and the clock signal changing from the first state to the second state and for generating a second memory element output signal (EA-**2**) upon storage of the request signal in the second memory means,

the store group circuit means associated with each of said devices being further comprised of means responsive to the first and second memory element output signals from the store group circuit means associated with each device of the plurality of said devices for steering the request signal to the first memory means if no request signal is stored therein, and, alternatively, to the second memory means if a request signal is stored in the first memory means, and means (**213**) responsive to the first and second memory element output signals from the store group circuit means associated with each device of the plurality of said devices for selecting the first or second memory element output signal for transmission to the arbiter.

4,384,324
MICROPROGRAMMED DIGITAL DATA PROCESSING SYSTEM EMPLOYING TASKING AT A MICROINSTRUCTION LEVEL

Dongsung R. Kim, Laguna Hills, and John H. McClintock, Jr., Mission Viejo, both of Calif., assignors to Burroughs Corporation, Detroit, Mich.

Filed May 6, 1980, Ser. No. 147,251
Int. Cl.³ G06F *9/46, 9/38, 9/22*
U.S. Cl. 364—200 **13 Claims**

1. In a microprogrammed data processing system including high level instruction storage means, the combination comprising:

task generation means for fetching high level instructions from said high level instruction storage means and in response thereto generating one or more tasks for performing each high level instruction, each task being in turn performable by the execution of one or more task microinstructions;

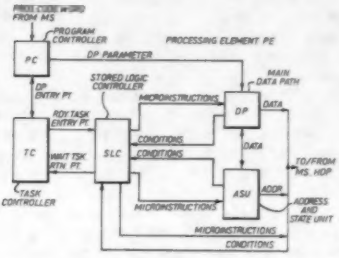
microinstruction storage means for storing selectably addressable task microinstructions for use in performing said tasks;

said task generating means being operative to access selected

microinstructions from said microinstruction storage means;

microinstruction execution means for receiving and executing microinstructions selected from said microinstruction storage means by said task generating means; and

task control means responsive to said task generation means and to said microinstruction execution means for determining which tasks are ready for execution and for causing said task generation means to address said microinstruction storage means with addresses corresponding to ready task microinstructions, the order of addressing of microinstructions being chosen to allow for the execution of ready task microinstructions by said microinstruction execution means in an intermixed order regardless of the particular task to which each belongs so as to thereby provide for task multiprogramming at a microinstruction level.

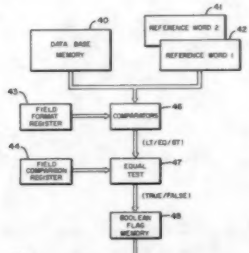


4,384,325

APPARATUS AND METHOD FOR SEARCHING A DATA BASE USING VARIABLE SEARCH CRITERIA

Leo J. Slechta, Jr., Rosemount; Bennett W. Manning, Eagan; Nancy E. Preckshot, Minneapolis, and Howard M. Wagner, Roseville, all of Minn., assignors to Sperry Corporation, New York, N.Y.

Filed Jun. 23, 1980, Ser. No. 161,983
Int. Cl.³ G06F *7/34*
U.S. Cl. 364—200 **4 Claims**



2. An apparatus for comparing a first record to a second record wherein said first and second records have a plurality of fields comprising:

an arithmetic comparator means for comparing each of said plurality of fields of said first record to each corresponding one of said plurality of fields of said second record in order to produce a like plurality of arithmetic comparison results;

storing means for storing a plurality of user specified expected results to said arithmetic comparator comparing of each of said plurality of fields of said first record to said each corresponding one of said plurality of fields of said second record;

logical comparator means, respectively coupled to said arithmetic comparator means for receiving said plurality of arithmetic comparison results and to said storing means for receiving said user specified expected results, for comparing said plurality of arithmetic comparison results from said arithmetic comparator to said plurality of user specified expected results from said storing means wherein the output of said logical comparator means is true for each one of said plurality of fields if one said plurality of arithmetic comparison results is the same as a corresponding one of said plurality of said user specified expected results and wherein the output of said logical comparator means is false for each one of said plurality of fields if one said plurality of arithmetic comparison results is not the same as a corresponding one of said plurality of said user specified expected results; and

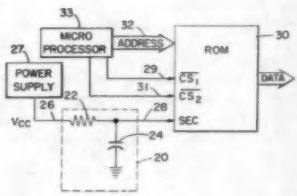
Boolean evaluator means, respectively coupled to said logical comparator means for receiving the true and the false results thereof, for determining said first record to be a hit if a user supplied Boolean expression is satisfied by said true and false results output of said logical comparator means and for determining said first record to be a miss if said user supplied Boolean expression is not satisfied by said true and false results output of said logical comparator means.

4,384,326

MEMORY SECURITY CIRCUIT USING THE SIMULTANEOUS OCCURRANCE OF TWO SIGNALS TO ENABLE THE MEMORY

Rathindra N. Devchoudhury, Ithaca, N.Y., assignor to NCR Corporation, Dayton, Ohio

Filed Jul. 28, 1980, Ser. No. 172,581
Int. Cl.³ G06F *13/00*
U.S. Cl. 364—200 **14 Claims**



1. A system for controlling the operation of a memory device comprising;

a memory device (**34**);

means (**27**) for generating a first memory operating signal (V_{cc}) at the start of operation of said memory device;

first circuit means (**20**) coupled to said operating signal generating means for generating a delayed signal (SEC) representing said first memory operating signal delayed a first predetermined time period;

first logic means (**86, 98**) responsive to the generation of said first memory operating signal for generating a first control signal (**100**) for a second predetermined time period;

and second logic means (**88, 108, 90**) coupled to said memory device and responsive to the simultaneous occurrence of said delayed signal and said first control signal for generating a second memory operating signal (**113**) thereby enabling said memory device to be operated.

4,384,327

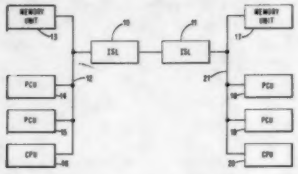
INTERSYSTEM CYCLE CONTROL LOGIC

John W. Conway, Waltham; John J. Bradley, Framingham, both of Mass.; Kenneth E. Bruce, Nashua, N.H.; Ralph M. Lombardo, Jr., Lowell, and Bruce H. Tarbox, Billerica, both of Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Continuation of Ser. No. 956,383, Oct. 31, 1978, abandoned. This application Jan. 8, 1981, Ser. No. 223,540

Int. Cl.³ G06F *9/46, 3/04*

U.S. Cl. 364—200 **2 Claims**



1. A logic communication control system for accommodating the exchange of information between communication busses, while information flow between data processing units coupled to the same communication bus may continue simultaneously on each communication bus at the bus rate and further information requests from data processing units coupled to any of said communication busses may continue to be handled simultaneously by pairs of intersystem link (ISL) units electrically interfacing with each of said communication busses respectively in a data processing system wherein plural communication busses each provide a common information path for plural data processing units including memory units, peripheral control units, ISL units and central processing units interfacing therewith, and each of said plural busses are in electrical communication with at least one ISL unit, and ISL units in turn are in electrical communication in pairs to provide communication paths between said plural busses, said control system which comprises:

(a) plural register means in electrical communication with a local communication bus for accommodating bidirectional information transfers with said local bus, storing binary coded information including plural messages received from said local bus at the bus rate, and completing any information transfers with said local bus within a bus cycle time period;

(b) write select logic control means in a local ISL unit in electrical communication with said local bus, and responsive to a BSDCNN signal from said local bus for loading said plural register means with said binary coded information including busy and action pending bits fo said plural register means, and issuing a WAIT signal to said local bus within said bus cycle time period to free said local bus to accommodate further local bus information flow between data processing units associated therewith;

(c) cycle recognition logic means in said local ISL unit responsive to said action pending bit and to said binary coded information for supplying channel hit bit and memory hit bit signals, a remote ISL unit being responsive to information generated by said hit bit signals for identifying one of said plural DPU's on a remote communication bus to which said binary coded information is to be transferred, and identifying the type of ISL activity that is required;

(d) local cycle generator means in said local ISL unit responsive to said action pending bit, said channel hit bit and said memory hit bit signals for generating binary coded control signals to initiate a local RRQ cycle and a local transfer cycle in said local ISL unit to transfer said binary coded information from said plural register means by electrical communication to said remote ISL unit;

(e) remote cycle generator means in said remote ISL unit responsive to said binary coded control signals received from said local cycle generator means by electrical communication for initiating a remote RRQ cycle in said remote ISL unit to receive said binary coded information from said local ISL unit and to signal to said local ISL unit by electrical communication the completion of said local transfer cycle, thereby accommodating further local cycles in said local ISL unit;

(f) bus cycle generator means in said remote ISL unit responsive to said remote RRQ cycle for issuing a BSDCNN signal to said remote bus for enabling said binary coded information to said remote bus;

(g) remote response logic control means in said remote ISL unit and in electrical communication with said remote bus for transferring ACK, NAK and WAIT signals received from said remote bus to said local ISL unit; and

(h) logic compare means in said local ISL unit responsive to said ACK, NAK and WAIT signals and the occurrence of an idle state in said local ISL unit for supplying said ACK, NAK and WAIT signals to said local bus upon the occurrence of an equivalence between said binary coded information stored in said register means and binary coded information on said local bus, thereby identifying a previously issued command from a data processing unit on said local bus.

4,384,328

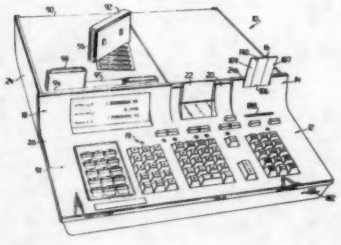
PROGRAMMABLE CALCULATOR INCLUDING MAGNETIC READING AND RECORDING MEANS

Robert E. Watson; Jack M. Walden, and Charles W. Near, all of Loveland, Colo., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Continuation of Ser. No. 85,342, Oct. 16, 1979, abandoned, which is a continuation of Ser. No. 850,329, Nov. 10, 1977, abandoned, which is a division of Ser. No. 535,750, Dec. 23, 1974, Pat. No. 4,063,221, which is a division of Ser. No. 153,437, Jun. 15, 1971, Pat. No. 3,859,635. This application Mar. 2, 1981, Ser. No. 239,867

Int. Cl.³ G06F *3/02, 3/06, 3/14, 13/08*

U.S. Cl. 364—200 **10 Claims**



1. A programmable electronic calculator comprising:

keyboard input means for entering information;

first memory means into which information may be written and from which information may be read;

second memory means for storing routines and/or subroutines to be executed by the calculator in performing selected functions;

processing means responsive to information from the keyboard input means or the first memory means for selectively executing one or more of the routines and/or subroutines stored in the second memory means to perform selected functions employing information from one or both of the keyboard input and first memory means;

magnetic reading and recording means for recording information stored in the first memory means onto one or more external magnetic record members and for loading infor-

mation recorded on said one or more external magnetic record members into the first memory means;

control means for enabling the magnetic reading and recording means to separately record onto said one or more of said external magnetic record members both program information and data stored in the first memory means and to thereafter separately reload the recorded program information and data back into the first memory means from the one or more external magnetic record members; and

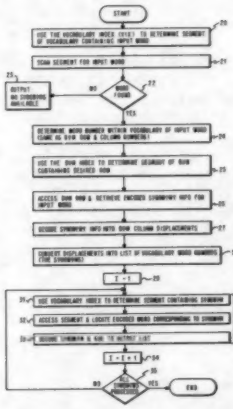
output means for providing an output indication of the functions performed by the calculator.

4,384,329

RETRIEVAL OF RELATED LINKED LINGUISTIC EXPRESSIONS INCLUDING SYNONYMS AND ANTONYMS

Walter S. Rosenbaum, Bethesda, and Alan R. Tannenbaum, Washington Grove, both of Md., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 19, 1980, Ser. No. 218,222
Int. Cl.³ G06F *15/40*
U.S. Cl. 364—300 **7 Claims**



1. A method for interactively generating a list of linguistic expressions synonymic to an input linguistic expression using a programmable digital computer system comprising the steps of:

(a) storing in a first section of the memory of said programmable digital computer system a vocabulary of linguistic expressions including synonyms and including a presorted index to said vocabulary, each linguistic expression including address codes keyed to said index;

(b) storing in a second section of the memory of said programmable digital computer system a two-dimensional array containing binary bits linking said address codes of said linguistic expressions stored in said first section of said memory;

(c) comparing a segment of an input linguistic expression to said presorted index for approximating the address location of the input linguistic expression in said first section of the memory;

(d) comparing the input linguistic expression to said vocabulary of linguistic expression stored in said first section of said memory beginning at the approximated address and storing the address code associated with the stored linguistic expression when when an equal occurs;

(e) accessing said second section of the memory at the address specified by the stored address code;

(f) decoding the binary bits stored at the accessed address into the corresponding address codes;

(g) utilizing the corresponding address codes to access linguistic expressions stored in said first section of said memory;

(h) concatenating the accessed linguistic expressions in a third section of said memory; and

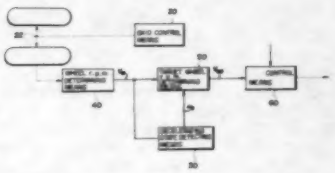
(i) displaying the input linguistic expression together with the concatenated linguistic expressions.

4,384,330

BRAKE CONTROL SYSTEM FOR AN AUTOMOTIVE VEHICLE

Toshiro Matsuda, and Minoru Honda, both of Yokohama, Japan, assignors to Nissan Motor Company, Limited, Kanagawa, Japan

Filed Oct. 8, 1980, Ser. No. 195,312
Claims priority, application Japan, Oct. 9, 1979, 54-129375
Int. Cl.³ B60T *8/10*
U.S. Cl. 364—426 **20 Claims**



1. A brake control system for an automotive vehicle for controlling application and release of brake pressure to a wheel cylinder to prevent the vehicle from skidding, comprising:

first means for determining wheel r.p.m. and generating a first signal indicative of determined wheel r.p.m.;

second means for determining a deceleration rate of wheel r.p.m. based on said first signal and generating a second signal when the determined deceleration rate becomes equal to or greater than a predetermined value;

third means responsive to said second signal to hold a signal value of said first signal for each cycle of skid control operation, to determine a deceleration coefficient based on the held values of said first signals generated in a current cycle and in an immediately preceding cycle of skid control operation and further based on a time interval between said second signals, to determine a ramp signal indicative of decelerating r.p.m. in the next cycle of skid control operation based on the determined deceleration coefficient and to determine a target wheel r.p.m. signal having a value indicative of a target wheel r.p.m. calculated by subtracting the value of said ramp signal from the value of said first signal, said third means producing a third signal when said current first signal value becomes equal to or less than said target wheel r.p.m. signal; and

fourth means for controlling application and release of brake pressure to the wheel cylinder depending on absence or presence of said third signal.

4,384,331

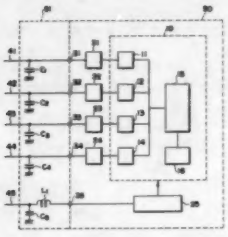
NOISE SUPPRESSOR FOR VEHICLE DIGITAL SYSTEM

Hiroshige Fukuhara; Yukitsuga Hirota, and Masazumi Sone, all of Yokohama, Japan, assignors to Nissan Motor Company, Limited, Kanagawa, Japan

Filed Apr. 21, 1980, Ser. No. 141,979
Claims priority, application Japan, Apr. 23, 1979, 54-48991
Int. Cl.³ H04B *15/06*; H01R *13/648*
U.S. Cl. 364—431.12 **18 Claims**

12. In combination with an automotive vehicle, radio frequency communication components, a digital control system including a digital computer, sensors for deriving input signals

for the digital control system, the digital control system deriving pulses, unshielded leads connected to have a tendency to carry the pulses from the control system to the sensors and to carry the input signals from the sensors to the control system, the pulses carried by the unshielded leads from the control system to the sensors having a tendency to establish radio frequency interference that interferes with the communication components, apparatus for substantially preventing the radio frequency interference from being coupled to the communication components, including: grounded metal shield means



encasing the digital control system for electromagnetically shielding the communication components from the control system, the leads extending through the metal shield means, a separate shunt capacitor connected between each lead and ground, each shunt capacitor being encased within the shield means, the capacitors having values to attenuate the radio interference to a level such that the interference does not substantially interfer with the communication components so the radio interference is confined to the interior of the shield means.

4,384,332

NUMERICALLY CONTROLLED MACHINE TOOL

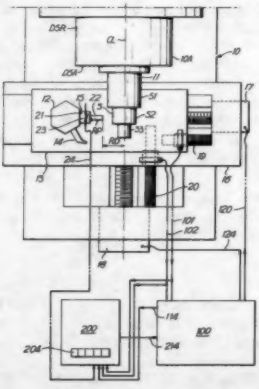
David R. McMurtry, Wotton-under-Edge, England, assignor to Renishaw Electrical Limited, Wotton-under-Edge, England

Filed Oct. 17, 1980, Ser. No. 198,267

Claims priority, application United Kingdom, Oct. 23, 1979, 7936634

Int. Cl.³ G06F *15/46*

U.S. Cl. 364—474 **14 Claims**



1. A method for measuring a dimension of a workpiece mounted on a numerically controlled machine tool having a probe for sensing the surface of said workpiece; automatic means for moving said probe relative to a datum, said automatic means including a first measuring means for producing a signal defining units of distance corresponding to the relative movement of said probe with respect to said datum; and a second measuring means coupled to said first measuring means for accumulating a count corresponding to the relative movement of said probe with respect to said datum; wherein the actual position of said workpiece surface is determined relative to a nominal position thereof, said nominal position being at a known distance from said datum, said method comprising the automatic and sequential steps of;

moving said probe to a first position, said first position being one of said actual and nominal positions of said workpiece surface;

initiating operation of said second measuring means to begin a count of the units of distance defined by the signal from said first measuring means when said probe attains said first position;

moving said probe to a second position, said second position being the other of said actual and nominal positions of said workpiece surface; and

terminating the count in said second measuring means when said probe attains said second position;

wherein the count accumulated by said second measuring means on termination thereof defines the actual distance of said workpiece surface from said nominal position.

4,384,333

CONTROL SYSTEM FOR CRANKSHAFT MILLING AND GRINDING MACHINES

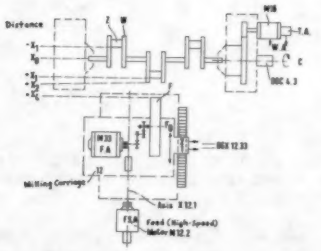
Kurt Maecker, Munich, Fed. Rep. of Germany, assignor to GFM Gesellschaft fuer Fertigungstechnik und Maschinenbau, Steyr, Austria

Continuation of Ser. No. 41,248, May 21, 1979, abandoned. This application Jun. 30, 1981, Ser. No. 279,041

Claims priority, application Fed. Rep. of Germany, May 22, 1978, 2822346

Int. Cl.³ G06F *15/46*

U.S. Cl. 364—474 **6 Claims**



1. Electric numerical program control for crankshaft milling machines and crankshaft grinding machines with the following characteristics:

(a) a milling slide which is movable in a plane at right angles to the axis of the crankshaft,

(b) a workpiece spindle which can be rotated and is connected to a rotary digital transducer in a stationary manner which transmits pulses in relation to the rotary movement,

(c) a computer associated with the milling slide in which predetermined, selectable operating programs are stored for crank pins, oval/rectangular webs and mixed forms of the latter,

(d) means for entering and storing in the computer drawing and/or design data for pins and webs and their mixed forms as well as the cutter radius R_F and a uniform angle calculation increment for the rotation of the workpiece,

(e) means for inputting into the computer the pulses gener-

ated by the rotary digital transducer mounted on the workpiece spindle,

(f) means incorporated in the computer for calculating and storing the position values x_n required for the milling slide from the predetermined, the entered and the input values for the purpose of machining crank pins according to the known formula for crank assemblies, for curved and straight circumferential profiles from form radii Ru and their angular positions calculated in the computer, means for output for these values for the purpose of calculating a sign digit adapted to the angular increment and means for storage of these sign digits,

(g) multipliers incorporated in the computer for multiplying the sign digits by the number of pulses received in the predetermined time increments ta during the process, whereby the feed rate for the next angular increment is determined, which is converted into the guide voltage for the milling slide.

4,384,334

APPARATUS FOR DRIVING PULSE MOTORS FOR AUTOMATICALLY ADJUSTING EXTERNAL CIRCUITS

Kazushi Tateishi, Kamisatomachi; Kuniaki Anzai, Kumagaya, and Taketoshi Tomita, Chichibu, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

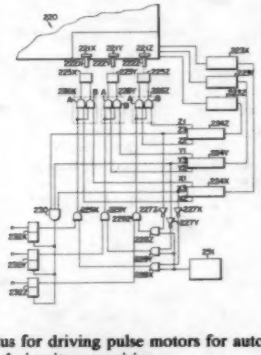
PCT No. PCT/JP79/00172, § 371 Date Nov. 5, 1980, § 102(e) Date Nov. 5, 1980, PCT Pub. No. WO80/02492, PCT Pub. Date Nov. 13, 1980

PCT Filed Jun. 30, 1979, Ser. No. 224,310

Claims priority, application Japan, May 8, 1979, 54-55851; May 8, 1979, 54-55852; May 8, 1979, 54-55853; May 8, 1979, 54-55854; May 8, 1979, 54-55855; May 8, 1979, 54-55856; May 11, 1979, 54-57817; May 11, 1979, 54-57818; May 11, 1979, 54-57821

Int. Cl.³ G05B *11/32*; H05K *13/00*; H04N *7/02*; H02P *8/00*

U.S. Cl. 364—481 **5 Claims**



1. An apparatus for driving pulse motors for automatically adjusting external circuits comprising:

a plurality of rotation direction switching circuits each having a first control terminal and a second control terminal;

pulse motor means including a plurality of pulse motors connected to the respective rotation direction switching circuits and a plurality of driven devices connected to the respective pulse motors for adjusting said external circuits, each of said pulse motors rotating in one direction when a control signal is supplied to said first control terminal of the corresponding rotation direction switching circuit and rotating in the reverse direction when said control signal is supplied to said second control terminal of the corresponding rotation direction switching circuit;

measuring means adapted to be connected to said external circuits for measuring the outputs of said external circuits;

a plurality of digital comparators connected to said measuring means, for comparing output data of the measuring means with predetermined data and for delivering logic outputs through first output terminals thereof when the output data of the measuring means is greater than the predetermined data, through second output terminals thereof when the output data of the measuring means is smaller than the predetermined data and through third output terminals thereof when the output data of the measuring means is substantially equal to the predetermined data, said first output terminals connected to the respective first control terminals and said second output terminals connected to the respective second control terminals;

a pulse generating circuit for generating drive pulses to drive said pulse motors;

gate circuit means connected to said pulse generating circuit and the digital comparators, for individually inhibiting said drive pulses from being supplied to the pulse motors when receiving predetermined logic outputs from the third output terminals; and

control circuit means connected to the said gate circuit means for outputting a stop signal when receiving the predetermined logic outputs from the third output terminals so as to turn off the gate circuit means, whereby automatic adjustment of said external circuits is stopped.

4,384,335

METHOD OF AND SYSTEM FOR DETERMINING THE PITCH IN HUMAN SPEECH

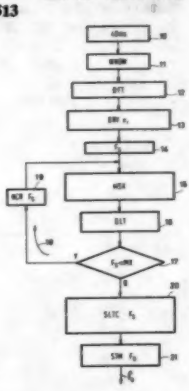
Hendrikus Duifhuis; Leonardus F. Willems, and Robert J. Sluyter, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 99,296, Dec. 3, 1979. This application Feb. 11, 1982, Ser. No. 347,763

Claims priority, application Netherlands, Dec. 14, 1978, 7812151

Int. Cl.³ G10L *1/00*

U.S. Cl. 364—513 **10 Claims**



1. In a system of speech analysis used, for example, in a vocoder in which the pitch value of human speech is determined and subsequently transmitted together with other speech parameters to the receiving section of another vocoder wherein the speech is synthesized and reproduced, a method for determining the pitch of a speech signal comprising the steps:

analyzing the amplitude of said speech signal by regularly selecting time segments of the speech signal, determining from each time segment a sequence of spectrum components which constitutes the descrete Fourier transform of samples of the speech signal, and deriving in each time segment the position of the significant peaks in the spectrum from the sequence of spectrum components;

selecting a starting value for the pitch, determining a se-

quence of consecutive integral multiples of said pitch value, and establishing intervals around said pitch value and multiples thereof, said intervals defining a mask having apertures in situ of said intervals, harmonic numbers corresponding to the multiplication factors in said multiples being associated respectively with said apertures;

determining the number of said significant peak positions which coincide with said mask apertures;

computing a quality figure in accordance with a criterion indicating the degree to which said significant peak positions and said mask apertures match;

repeating said immediately preceding determining and computing steps using masks, as determined in said selecting step, for consecutively higher values of pitch up to a predetermined highest value of pitch, resulting in the computing of separate quality figures associated with each of said pitch values;

selecting the value of pitch having the highest associated quality figure and designating the associated mask as a reference mask;

associating the harmonic numbers of the apertures of said reference mask with the significant peak positions coinciding with said apertures, thereby defining the location of each of said significant peak positions in a sequence of harmonics of a same fundamental tone;

determining a probable value for the pitch of the speech signal, wherein the deviations between the significant peak positions and the corresponding multiples of the probable value having the same harmonic numbers are as small as possible, and

combining said determined pitch value with other speech parameters for subsequent transmission or storage thereof in, for example, a read-only-memory.

4,384,336

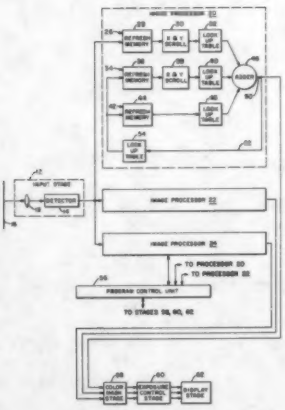
METHOD AND APPARATUS FOR LIGHTNESS IMAGING

Jonathan A. Frankle, Watertown, and John J. McCann, Belmont, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Aug. 29, 1980, Ser. No. 182,636

Int. Cl.³ G06F *15/20*; H04N *5/19*

U.S. Cl. 382—49 **86 Claims**



2. Image processing apparatus for determining a field of accumulating measures of image lightness in response to information identifying optical radiance associated with arrayed sections of an image field, said apparatus having the improvement comprising

A. means for sequentially determining a comparative measure of the radiance information for each segmental area of said image field relative to said information for each of plural other segmental areas, said means

(i) providing a new intermediate value of each such measure in response to the product of a ratio function of the radiance information associated with each first-named segmental area and with each second-named segmental area and of a like measure previously determined for the second-named segmental area, and

(ii) determining a sequentially new value of each said measure in response to a selectively weighted averaging of said new intermediate value and a like measure previously determined for said first-named segmental area, and

B. means for the prior measure for each first-named segmental area in response to said newly-determined value, thereby to determine each measure in the field thereof in response to an accumulating succession of said measures.

46. A method for producing an image of a subject comprising the steps of

A. detecting radiance ratios between different areas of said subject and producing a first lightness-determining quantity in response to each such ratio,

B. effecting said ratio detection for each area of said subject a multiple number of times with other areas of said subject which are at different locations on said subject relative to that area,

C. combining each first lightness-determining quantity with a second lightness-determining quantity associated with one area in that ratio and replacing the second lightness-determining quantity associated with another area in that ratio in response thereto, and

D. producing an image of the subject in which the lightness of the respective image areas is determined by the last repiacement values of said second lightness-determining quantities.

4,384,337

ZONAL INK DISTRIBUTION MEASURING METHOD AND SYSTEM

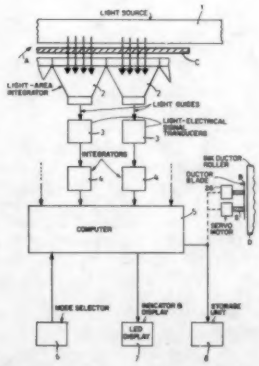
Hans E. Mamberer, Königsbrunn, and Dieter Hirt, Augsburg, both of Fed. Rep. of Germany, assignors to M.A.N.-Roland Druckmaschinen Aktiengesellschaft, Offenbach am Main, Fed. Rep. of Germany

Filed Dec. 2, 1980, Ser. No. 212,119

Claims priority, application Fed. Rep. of Germany, Dec. 15, 1979, 2950650

Int. Cl.³ B41J *33/00*; B41C *7/08*

U.S. Cl. 364—518 **14 Claims**



1. Apparatus for electro-optical measurement of information coverage on zones of a surface of an areal carrier (C) and

deriving corresponding representative utilization signals, particularly for control of ink zone adjustment means (26, S) in a printing apparatus (B, D),

in which the distribution of the degree of inking of zones of the surface area is determined, having

electro-optical transducing means (1, 2, 3, 4, 19) providing en electrical signal representative of the relative distribution of ink in the respective zones of the surface area,

and comprising, in accordance with the invention,

a memory (11, a comparator (10, 12) and control means (6, 13, 14) including a selector controlling the sequencing of comparison, and storage of signals,

said memory and comparator being connected to and receiving signals from said transducing means covering respective zones, and processing said signals, upon introduction of the carrier with the surface into the transducing apparatus to derive therefrom and provide said utilization signals applicable to respective zones,

said memory and comparator being connected and arranged for

(a) upon selection of a first calibrating mode and upon introduction of a first standard surface (A) having a first extreme value of ink covering into the transducer means, receiving first transduced signals transmitted by the transducer means, and storing said first received signals;

(b) upon selection of a second calibrating mode and upon introduction of a second standard surface (B) having an opposite and second extreme value of ink covering into the transducer means, receiving second transduced signals transmitted by the transducing means, and comparing with said stored first transduced signals to form a difference of the second transduced signals with respect to said stored first transduced signals to derive difference signals, and storing said difference signals in the memory (11); and

(c) upon selection of a third or controlled operating mode and introduction of a carrier having a surface (C) carrying indicia intended for printing into the transducing means, receiving third transduced signals transmitted by the transducing means to derive operating transduced signals, and comparing the signals for the respective zones covered by the zones of the surface in the transducing means in said comparator (12) with said stored difference signals of the respective zones in the memory (11) to derive utilization signals;

output means (7, 8, 26) for receiving said utilization signals;

and sequencing control means (13, 14) controlling said memory (11) and comparator (10, 12) for selectively receiving and storing the respective signals applied thereto.

4,384,338

METHODS AND APPARATUS FOR BLENDING COMPUTER IMAGE GENERATED FEATURES

William S. Bennett, Chenango Bridge, N.Y., assignor to The Singer Company, Binghamton, N.Y.

Filed Dec. 24, 1980, Ser. No. 219,643
Int. Cl.³ G06F 3/153; H04N 7/18
U.S. Cl. 364—522 **8 Claims**

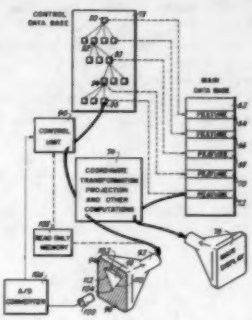
1. In a computer image generation system for providing a dynamic scene as viewed from an eye point of a viewer, and which system includes a main data base containing information representing features of the presented scene, a display means, and a main computational unit for generating said scenes, apparatus for determining the ratio of blending for new features into the total scene comprising:

a control data base containing selected information related to selected features contained within said main data base, said selected information including the spatial coordinates of a selected control point related to a selected feature and the range at which said selected feature is to be first included in said dyanamic visual scene;

a control unit for determining when said selected control point is within a selected range at which said feature should be included;

means for receiving data representative of said selected control point from said control data base and for determining the location of said selected control point on a theoretical image plane above said viewer's eye point;

means for determining a blending ratio for said selected feature according to the position of said selected control



point on said image plane with respect to a selected eye point above said viewer's eye point; and

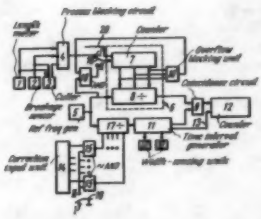
means for providing a signal representative of said determination to said main computational unit such that said feature may be blended into said dyanamic scene.

4,384,339

STRIP MATERIAL AREA-METER

Max G. Rokhman, 23 Avgusta, 65, kv. 42, Kharkov, U.S.S.R.

Filed Oct. 21, 1980, Ser. No. 199,280
Int. Cl.³ G01B 5/26
U.S. Cl. 364—564 **6 Claims**



1. An area-measuring device for measuring area of strip materials being reeled on a reeling machine, comprising:

a process blocking circuit having three inputs and an output, and adapted for blocking said measuring device in the case of breakage of the strip material being reeled on and subsequent cutting-off thereof;

a length-meter having an output connected to one of said inputs of said process blocking circuit;

a breakage-sensing element having an output connected to the other input of said inputs of said process blocking circuit;

a cutting device adapted for cutting off a strip material from the roll in the case of breakage of said strip material, and having an output connected to the third input of said process blocking circuit, and two inputs, one of which inputs being connected to said output of said length-meter, and the second input connected to said output of said breakage-sensing element;

a first two-position switch having an input lead, a first-position output lead and a second- position output lead, the first position output lead connected to said output of said process blocking circuit;

a common clearing line;

an intermediate memory counter, having a clearing input connected to said common clearing line, a count input connected to said input lead of said first two-position switch, and outputs;

a first controlled frequency divider having an output, control inputs connected by positions to said outputs of said intermediate memory counter, and a count input;

an overflow blocking unit having inputs connected to said outputs of said intermediate memory counter, and an output;

a reference frequency generator having an output connected to said count input of said first frequency divider;

a second controlled frequency divider having plural control inputs, a count input connected to said output of said reference frequency generator, and an output;

AND circuit means having an output connected to said second position output lead of said first two-position switch, and two inputs one of which inputs connected to said output of said overflow blocking unit, and the second input connected to said output of said reference frequency generator;

plural NAND logic circuits equal in number to the number of said inputs of said second controlled frequency divider, and each having first and second inputs, and outputs connected to said control inputs of said second controlled frequency divider;

a second two-position switch having first and second position output leads, the second position output lead connected to said first inputs of each said NAND circuit, and the first position output lead being grounded;

a correction input unit having outputs connected to said second inputs of each said NAND circuit;

a time interval generator having an input connected to said output of said second controlled frequency divider, at least one control input, and two outputs one of which being a clearing output;

at least one width-setting unit having an output connected to a respective control input of said time interval generator, and an output;

a coincidence circuit having two inputs, one of said two inputs connected to said output of the first controlled frequency divider, with the second input being connected to said output of said time interval generator, and an output; and

a counter unit having an input connected to said output of said coincidence circuit, and a clearing output connected to said output of said time interval generator.

4,384,340

DATA PROCESSOR HAVING APPARATUS FOR CONTROLLING THE SELECTION OF DECIMAL DIGITS OF AN OPERAND WHEN EXECUTING DECIMAL ARITHMETIC INSTRUCTIONS

Steven A. Tague, Billerica, and Virendra S. Negi, Pepperell, both of Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Filed Dec. 24, 1980, Ser. No. 220,220

Int. Cl.³ G06F 7/50, 7/52

U.S. Cl. 364—736 **10 Claims**

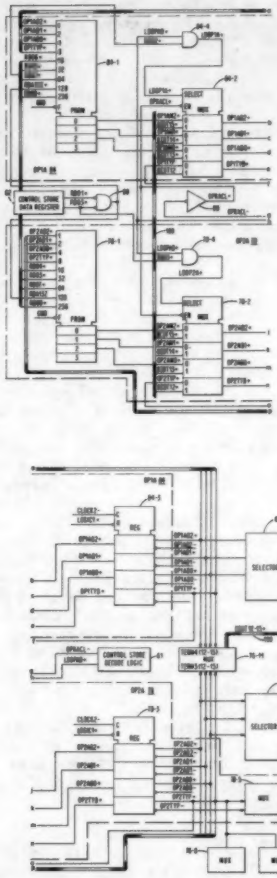
1. A commercial instruction processor coupled to a main memory for executing decimal arithmetic instructions, receiving an operation code, a plurality of descriptor words and a plurality of operands including packed decimal operands and string decimal operands from said main memory and having apparatus for generating decimal digit position signals indicating the decimal digit position to be selected for processing comprising:

control store means responsive to said operation code for generating a plurality of control store signals;

multiplexer means coupled to said control store and responsive to said plurality of control store signals and one of said plurality of descriptor words for generating a type signal and said decimal digit position signals;

register means coupled to said multiplexer means for storing said type signal and said decimal digit position signals indicating a first predetermined decimal digit position; and

read only memory means coupled to said control means and said register means, and responsive to said plurality of



control signals, said type signal and said decimal digit position signals representative of said first predetermined digit position for generating said decimal digit position signals indicative of a second predetermined decimal digit position.

4,384,341

DATA PROCESSOR HAVING CARRY APPARATUS SUPPORTING A DECIMAL DIVIDE OPERATION

Steven A. Tague, Billerica, and Virendra S. Negi, Pepperell, both of Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Filed Dec. 24, 1980, Ser. No. 219,638

Int. Cl.³ G06F 7/52

U.S. Cl. 364—763 **3 Claims**

1. A data processing system including a main memory for storing instructions including decimal divide instructions, and also storing a plurality of operands including a divisor and a dividend, a commercial instruction processor including apparatus for executing said decimal divide instructions comprising:

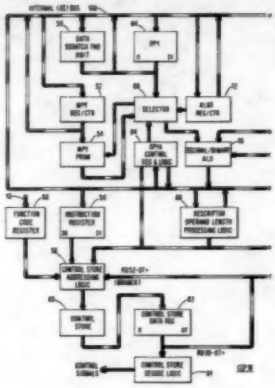
control means responsive to said decimal divide instructions for generating a plurality of control signals and a plurality of decode signals;

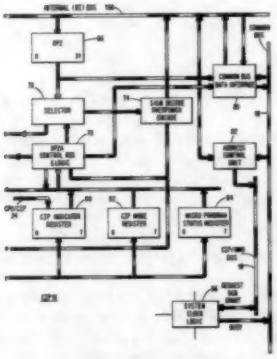
first means for storing said divisor;

second means for storing said dividend, a sequence of partial remainders and a remainder, each of said sequence of partial remainders replacing said dividend and previous ones of said sequence of partial remainders, said remainder replacing a last of said sequence of partial remainders;

third means coupled to said first and said second means for subtracting said divisor from said dividend and said sequence of partial remainders for generating said remainder;

fourth means coupled to said third means for counting the





number of subtractions resulting in a positive partial remainder for generating a quotient;

fifth means coupled to said second means for storing a most significant decimal digit of each of said sequence of partial remainders and generating a ZERO signal indicative of the contents of said fifth means being a decimal ZERO, said control means being responsive to said ZERO signal for generating a first decode signal,

wherein said third means includes multiplexer means coupled to said conrol means and responsive to said first decode signal for generating a test signal for determining if a most significant decimal digit of each of said sequence of partial remainders is less than a most significant decimal digit of said divisor for avoiding a subtraction and an add back sequence.

4,384,342

SYSTEM FOR REDUCING ACCESS TIME TO PLURAL MEMORY MODULES USING FIVE PRESENT-FETCH AND ONE PREFETCH ADDRESS REGISTERS

Takao Imura, Yamato; Shigeru Koyanagi, and Yoshihiro Joda, both of Yokohama, all of Japan, assignors to Panafacom Limited, Yamato, Japan

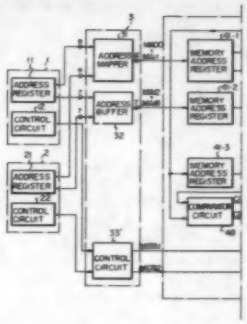
PCT No. PCT/JP80/00054, § 371 Date Nov. 30, 1980, § 102(e) Date Oct. 29, 1980, PCT Pub. No. WO80/02206, PCT Pub. Date Oct. 16, 1980

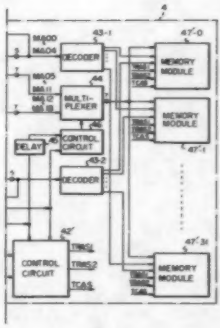
PCT Filed Mar. 28, 1980, Ser. No. 201,396

Claims priority, application Japan, Mar. 30, 1979, 54-37885

Int. Cl.³ G06F 9/38, 13/00

U.S. Cl. 364—900 **4 Claims**





1. A system for accessing memory modules by using an effective address composed of first, second and third parts, the first and second parts being determined later than the third part, comprising:

a first means for storing the first and second parts of a current effective address;

a second means for storing the third part of said current effective address;

a third means for storing the first part of the previous effective address;

fourth means for comparing the first part of said current effective address stored in said first means with the first part of said previous effective address stored in said third means when the first and second parts of said current effective address are determined; and

fifth means responsive to said first, second, third, and fourth means for accessing said memory modules by using the first part of said previous effective address stored in said third means and the third part of said current effective

address stored in said second means to initiate an access before the first and second parts of the current effective address are available, said fifth means additionally comprising means for completing the access after the first and second parts of the current effective address are available by using the second part of said current effective address stored in said first means if the first parts of said previous and said current effective addresses are determined to be the same as each other by said fourth means, and for accessing another module by using the first and second parts of said current effective address stored in said first means and the third part of said current effective address stored in said second means if the first parts of said previous and said current effective addresses are determined to be different from each other by said fourth means.

4,384,343

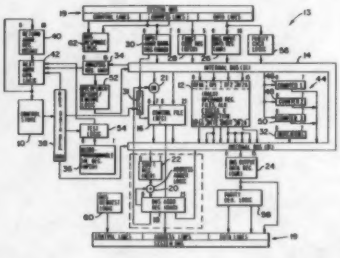
FIRMWARE CONTROLLED SEARCH AND VERIFY APPARATUS AND METHOD FOR A DATA PROCESSING SYSTEM

Victor M. Morganti, Lincoln; Virendra S. Negi, Pepperell, and Michael J. D. Graesser, Acton, all of Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Continuation of Ser. No. 11,597, Feb. 12, 1979, abandoned. This application Oct. 5, 1981, Ser. No. 308,782

Int. Cl.³ G06F *7/04*

U.S. Cl. 364—900 **14 Claims**



1. Apparatus in a data processing system for determining whether a first operand comprising a plurality of search indicia such as names, symbols, numbers, or the like match or are included as elements of a second operand to be searched comprising a list or array of indicia similar to the search indicia, the apparatus comprising:

A. a first plurality of storage locations for storing the first operand including the plurality of search indicia;

B. a second plurality of storage locations for storing the second operand including the plurality of elements to be searched;

C. means for comparing each of said search indicia with one of said elements and for thereafter repeating said comparing operation with each other of said elements of said second operand to determine whether a match condition exists between one of said elements of said second operand and one of said search indicia of said first operand; and

D. means, responsive to the detection of a match condition by said means for comparing, for generating an output identifying the search indicia of said first operand and the element of said second operand which produced said detected matched condition.

4,384,344

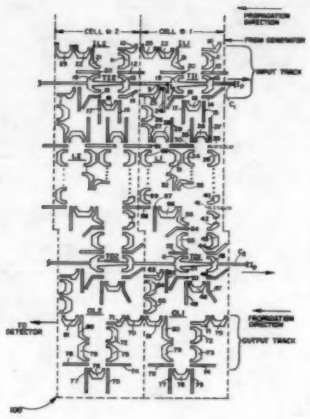
LAYOUT FOR SINGLE LEVEL BLOCK ACCESS CHIP

Leonard R. Tocci, Mission Viejo, Calif., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Continuation of Ser. No. 863,119, Dec. 22, 1977, abandoned. This application Dec. 21, 1981, Ser. No. 332,784

Int. Cl.³ G11C *19/08*

U.S. Cl. 365—16 **4 Claims**



1. A single level magnetic bubble chip comprising:

a plurality of similar cells;

at least first and second conductors each having a straight-line configuration across said chip crossing all of said cells;

an input propagation path meandering across said chip crossing all of said cells, including two crossings of said first conductor on each cell;

each cell having a closed loop propagation path for storing recirculating magnetic bubble domains therein, said closed loop propagation path meandering on its cell, including twice crossing said second conductor;

an output propagation path meandering across said chip crossing all of said cells, including two crossings of said second conductor on each cell;

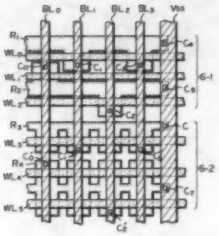
each cell having a first active component associated with said first signal conductor at said two crossings of said first conductor to control bubble domain propagation through said first propagation path, said first active component comprising first switch means for transferring magnetic bubble domains from said input path to said closed loop path in response to a signal on said first signal conductor; and

each cell further having a second active component associated with said second signal conductor at said two crossings of said second conductor to control bubble domain propagation through said closed loop path, said second active component comprising second switch means for transferring magnetic bubble domains from said closed loop path to said output propagation path in response to a signal on said second signal conductor.

4,384,345
READ-ONLY MEMORY DEVICE

Koichi Mikome, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed May 8, 1981, Ser. No. 261,878
Claims priority, application Japan, May 9, 1980, 55/61296
Int. Cl.³ G11C *11/40*
U.S. Cl. 365—104 **9 Claims**



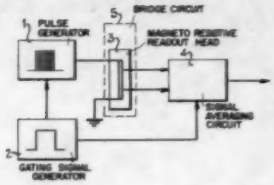
1. A read-only memory device, for storing binary data having first and second level signals, comprising:
first and second power supplies;
a plurality of first word lines;
a plurality of second word lines;
a plurality of bit lines crossed with said first word lines and said second word lines and operatively connected to said first power supply;
a first memory cell area comprising first memory cells at intersections between said first word lines and said bit lines, each first memory cell having a first transistor in dependence upon the first and second level signals of the binary data, each first memory cell present being operatively connected between a respective one of said first word lines and said bit line and to said second power supply, wherein the presence or absence of said first transistor represents a one of the first or second level signals of said binary data, respectively; and
a second memory cell area comprising second memory cells at intersections between said second word lines and said bit lines, each second memory cell having a second transistor operatively connected to a respective one of said second word lines and to said second power supply, wherein the presence or absence of a connection for connecting said second transistor to one of said bit lines represents a one of the first or second level signals of the binary data, respectively.

4,384,346
THIN FILM MAGNETO-RESISTIVE APPARATUS FOR EFFECTING READOUT FROM MAGNETIC MEMORY DEVICES

Alan J. Collins, Risca, Wales, and John D. R. McQuillin, Malvern, England, assignors to The Secretary of State for Industry in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Continuation-in-part of Ser. No. 7,448, Jan. 29, 1979. This application Dec. 5, 1980, Ser. No. 213,754
Claims priority, application United Kingdom, Jan. 30, 1978, 3591/78
Int. Cl.³ G11G *7/00*
U.S. Cl. 365—189 **3 Claims**

1. Readout apparatus for a magnetic memory device, said apparatus comprising a magneto-resistive readout head element in the form of a thin film, means for applying sensing current of about one Ampere to said readout head element in the form of trains of pulses, said pulses being sufficiently narrow to avoid electrical heating damage to said thin film readout head element, and signal averaging means connected to

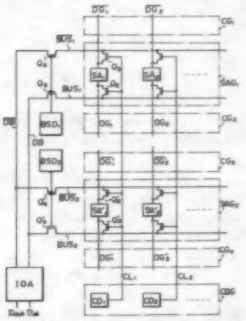


receive output signals from said readout head element for deriving an average output signal for the pulses in each train.

4,384,347
SEMICONDUCTOR MEMORY DEVICE

Tomio Nakano, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed Mar. 20, 1981, Ser. No. 245,728
Claims priority, application Japan, Mar. 28, 1980, 55-39892; Mar. 28, 1980, 55-39893
Int. Cl.³ G11C *13/00*
U.S. Cl. 365—189 **20 Claims**

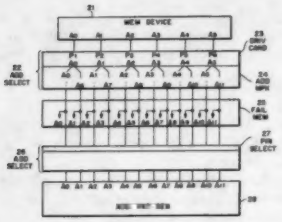


1. A semiconductor memory device comprising:
a plurality of memory blocks each including:
a row line; and
a sense amplifier array comprising digit lines, and a plurality of sense amplifiers, operatively connected to said digit lines, each having a pair of input/output terminals; and
a pair of memory cell groups each comprising a plurality of dynamic type memory cells which are selectively connected to said sense amplifier array through said digit lines;
a row decoder, operativelyy connected to each row line of said plurality of memory blocks, for selecting one of the row lines in said plurality of memory blocks;
pairs of bus lines, each pair corresponding to one of said sense amplifier arrays and each pair operatively connectable to corresponding pairs of said input/output terminals;
column lines operatively connected to said pairs of bus lines; and
a column decoder, operatively connected to said column lines, which is common to said plurality of memory blocks and which selectively connects one pair of input/output terminals of said sense amplifiers in each of said memory blocks to a corresponding one of said pairs of bus lines by changing the potential of one of said column lines connected between said column decoder and said plurality of memory blocks.

4,384,348
METHOD FOR TESTING SEMICONDUCTOR MEMORY DEVICE

Shigeki Nozaki, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed Dec. 29, 1980, Ser. No. 221,329
Claims priority, application Japan, Dec. 27, 1979, 54-182455[U]
Int. Cl.³ G11C *13/00*
U.S. Cl. 365—201 8 Claims



2. A testing system for testing a semiconductor memory device, comprising:

an address pattern/data generator which successively generates an address pattern of predetermined addresses which specifies the address of each memory cell of said semiconductor memory device which is to be tested and having a first data;

an address/data selector, operatively connected to said address pattern/data generator and said semiconductor memory device and having normal and swap operation modes, for accessing said semiconductor memory device with said address pattern generated by said address pattern/data generator in the normal operation mode, and for accessing said semiconductor memory device with an address pattern generated from said address pattern generated by said address pattern/data generator in which the predetermined addresses in the address pattern are interchanged in the swap operation mode, said address/data selector also passing there through the first data to said semiconductor memory device in any operation mode;

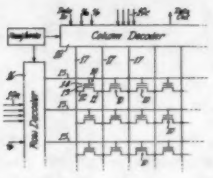
a comparator, operatively connected to said semiconductor memory device, for comparing a second data read-out from said semiconductor memory device with an expected value to detect hardware error; and

a fail memory device, operatively connected to said address pattern/data generator, said address/data selector and said comparator, for generating an inhibit signal, and for storing information concerning the existence of hardware error in each of the memory cells of said semiconductor memory device obtained from said comparator in an address region corresponding to that of said semiconductor memory device, said fail memory device also receiving the first data from said address pattern/data generator, said semiconductor memory device and said fail memory device both receiving the same address paattern from said address/data selector, and said comparator being prevented from comparing by the inhibit signal supplied by said fail memory device for the memory cells of said semiconductor memory device corresponding to the memory cells of said fail memory device which have information stored therein indicating the existence of hardware error.

4,384,349
HIGH DENSITY ELECTRICALLY ERASABLE FLOATING GATE DUAL-INJECTION PROGRAMMABLE MEMORY DEVICE

D. J. McElroy, Houston, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation-in-part of Ser. No. 80,712, Oct. 1, 1979, abandoned, and a continuation-in-part of Ser. No. 110,052, Jan. 7, 1980, which is a continuation-in-part of Ser. No. 923,876, Jul. 12, 1978, abandoned, which is a division of Ser. No. 762,613, Jan. 26, 1977, Pat. No. 4,151,021. This application Jun. 2, 1980, Ser. No. 155,039
Int. Cl.³ G11C *13/00*
U.S. Cl. 365—218 27 Claims

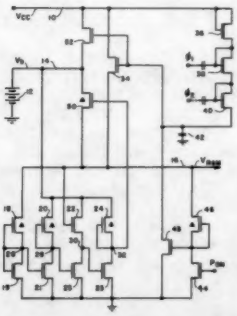


1. A method of electrically erasing a selected memory cell in an array of memory cells; each cell being of the type having a source-drain path, a charge storage level and a control gate and functioning to read out logic-level voltage via selected voltages of logic-level on said control gate and source-drain path; comprising the steps of: applying an erase voltage to one end of the source-drain path of said selected cell; applying a low voltage to said control gate of the selected cell; and applying a high voltage to said control gates of non-selected cells in the array; said erase voltage and said high voltage both being higher than said logic-level voltage; said low voltage being lower than said erase voltage and high voltage.

4,384,350
MOS BATTERY BACKUP CONTROLLER FOR MICROCOMPUTER RANDOM ACCESS MEMORY

Yong K. Lee, Mountain View, and Joseph R. Domitrowich, San Martin, both of Calif., assignors to Fairchild Camera & Instrument Corp., Mountain View, Calif.

Filed Nov. 3, 1980, Ser. No. 203,182
Int. Cl.³ G11C *7/00*
U.S. Cl. 365—229 7 Claims



1. In a MOS microcomputer circuit, a voltage comparator coupled to a V_{cc} conductor and to a source of standby power for generating an output signal when the V_{cc} level drops below a predetermined voltage level of said standby power, said comparator comprising:

a voltage divider including first and second MOS transistors coupled in series between the V_{cc} conductor and ground reference, the gates of said transistors being coupled together and to the interconnection of said first and second transistors;

an inverter circuit including third and fourth MOS transistors coupled in series, said third transistor being coupled to said standby source and said fourth transistor being coupled to ground reference, the gate of said third transistor being coupled to the interconnection of said third and fourth transistors and the gate of said fourth transistor being coupled to the interconnection of said first and second transistors; and

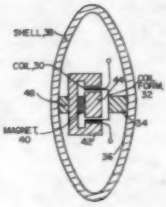
a buffer circuit including fifth and sixth series MOS transistors, said fifth transistor being coupled to said standby source and said sixth transistor being coupled to ground reference, the gate of said fifth transistor being coupled to V_{cc} and the gate of said sixth transistor being coupled to the interconnection of said third and fourth transistors, the output of said buffer circuit being at the intersection of said fifth and sixth series transistors.

4,384,351

FLEXTENSIONAL TRANSDUCER

John A. Pagliarini, Jr., Nashua, and Ronald P. White, Amherst, both of N.H., assignors to Sanders Associates, Inc., Nashua, N.H.

Filed Dec. 11, 1978, Ser. No. 968,158
Int. Cl.³ H04B *13/00*
U.S. Cl. 367—175 **2 Claims**



1. A flextensional transducer that is capable of operating at widely varying ocean depths, said transducer comprising:

a shell defining in cross section a closed geometric structure, said shell having opposing interior walls; and

an electromagnetic transducer which includes a permanent magnet and pole pieces supported on one of said opposing interior walls and a coil positioned for movement between said pole pieces and supported on a diametrically opposite interior wall, for either driving said walls in a flexural mode thereby to deflect said walls in accordance with electrical signals or for converting motion of said walls into electrical signals, whereby any deflection of said shell due to hydrostatic pressure does not effect the performance of said transducer.

4,384,352

ROTARY RECORDING MEDIUM REPRODUCING APPARATUS

Takashi Saito, Ayase; Masafumi Mochizuki, Yamato, and Toshio Hirano, Atsugi, all of Japan, assignors to Victor Company of Japan, Ltd., Yokohama, Japan

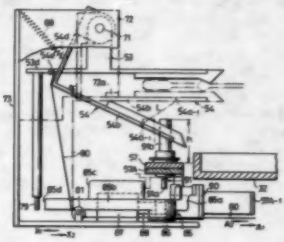
Filed Sep. 11, 1981, Ser. No. 301,297
Claims priority, application Japan, Sep. 12, 1980, 55-130036[U]
Int. Cl.³ G11B *17/04, 3/10*
U.S. Cl. 369—77 **5 Claims**

1. A rotary recording medium reproducing apparatus for reproducing a rotary recording medium accommodated within a case, said case comprising a jacket provided with a space for accommodating said rotary recording medium and an opening for allowing said rotary recording medium to go in and out of said jacket, and a lid member inserted through said opening of said jacket for closing said opening of said jacket, said rotary recording medium reproducing apparatus comprising:

an inserting opening through which said case is inserted;

a turntable for rotating said rotary recording medium;

lid member locking means and rotary recording medium clamping means provided at an innermost part of said reproducing apparatus at an opposite side from said inserting opening with respect to said turntable, said rotary recording medium clamping means consisting of an upper clamping member and a lower clamping member which is at a downwardly inclined rotated position upon non-clamping state and at a horizontal rotational position upon clamping state;



operating means pushed and displaced by said case inserted into said reproducing apparatus, for operating said lid member locking means and said rotary recording medium clamping means;

locking means for locking said operating means at a final displaced position; and

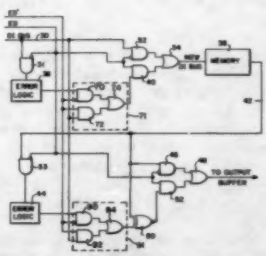
a restricting mechanism constructed from a part of said lower clamping member of said rotary recording medium clamping means and a part of said operating means, for restricting the displacing movement of said operating means towards the final displaced position at an intermediate position when said lower clamping member is at the downwardly inclined rotated position.

4,384,353

METHOD AND MEANS FOR INTERNAL ERROR CHECK IN A DIGITAL MEMORY

Ramesh C. Varshney, San Jose, Calif., assignor to Fairchild Camera and Instrument Corp., Mountain View, Calif.

Filed Feb. 19, 1981, Ser. No. 235,803
Int. Cl.³ G06F *11/10*; G11C *29/00*
U.S. Cl. 371—38 **3 Claims**



1. An error detection apparatus responsive to an ED signal, an ED′ signal, data and an external error check code received from an external source, with means for coupling said appara-

tus to a memory having a storing cycle and a reading cycle and an output buffer, comprising:

means, responsive to said ED signal, said ED′ signal, said data and said external error check code for generating a first internal error check code and storing said data and said external error check code in said memory during said storing cycle and for generating a second internal error check code and reading said data and said external error check code from said memory to said output buffer during said reading cycle when both said ED signal and said ED′ signal are low; and

means, including comparing means, responsive to said ED signal, said ED′ signal, said external error check code, said first internal error check code and, said second internal error check code for:

(a) storing said first internal error check code in said memory during said storing cycle and comparing said first internal error check code stored in said memory and said second internal error check code and reading the results of said comparison to said output buffer during said reading cycle when said ED signal is high and said ED′ signal is low; and

(b) storing said external error check in said memory during said storing cycle and comparing said external error check code stored in said memory and an external error check code received from said external source and reading the results of said comparison to said output buffer during said reading cycle when both said ED and said ED′ signals are high.

4,384,354

NOISE MARGIN MEASUREMENT AND ERROR PROBABILITY PREDICTION

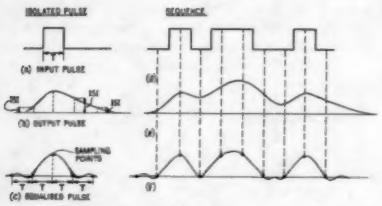
Thomas M. Crawford, Balerno; Alastair S. Reynolds, Linlithgow Bridge, and Ivan R. Young, Kirkliston, all of Scotland, assignors to Hewlett-Packard Limited, South Queensferry, Scotland

Filed Dec. 3, 1980, Ser. No. 212,373

Claims priority, application United Kingdom, Dec. 14, 1979, 7943265; Sep. 24, 1980, 8030841

Int. Cl.³ H04B *3/46*

U.S. Cl. 375—10 **37 Claims**



1. A method of measuring noise margins in a digital transmission system comprising a receiver, the method comprising the steps of:

(a) providing a pulse of a specified state and at least one parameter of which can be varied, within a sequence of pulses, which sequence is repeatable and is generated to be representative of normal traffic along a given transmission path of the system;

(b) varying the value of said at least one parameter of said pulse until said pulse when varied is such that it can be detected by a detector circuit of the system;

(c) detecting said pulse when varied, prior to any error correction thereof by an in-built error correction means of the system;

(d) repeating steps (a), (b) and (c) by providing said pulse at a different predetermined and repeatable position in said sequence, for each repetition, and detecting change of state of said pulse at each position; and

(e) accumulating the value of the variations of said at least one parameter as deviations from a selected reference value for each pulse position to determine the probability distribution of said deviations.

4,384,355

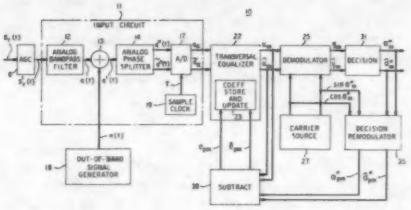
CONTROL OF COEFFICIENT DRIFT FOR FRACTIONALLY SPACED EQUALIZERS

Jean-Jacques Werner, Holmdel, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Continuation of Ser. No. 84,857, Oct. 15, 1979, abandoned. This application Dec. 5, 1980, Ser. No. 213,463

Int. Cl.³ H04B *1/10*

U.S. Cl. 375—14 **42 Claims**



1. Apparatus for processing a received data signal transmitted to said apparatus over a band-limited transmission channel, said received data signal representing a succession of data signal values occurring at T second intervals, said apparatus comprising

means for forming a sampled signal comprised of a succession of samples occurring at a predetermined rate of p/T samples per second, p>1, said sampled signal including energy derived from said received data signal distributed in a first plurality of frequency bands and further including additional energy distributed at frequencies intermediate said frequency bands,

means for equalizing said sampled signal,

means for recovering said data signal values from the output of said equalizing means, and

means for repetitively updating the response of said equalizing means.

4,384,356

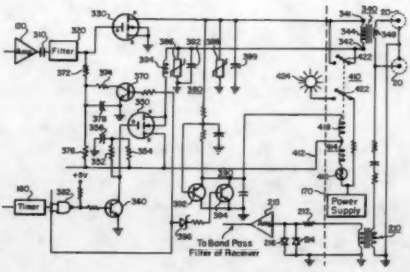
WIDE BAND MODEM FOR HIGH SPEED DATA TRANSMISSION

Ronald H. Beerbaum, Southbury, Conn., assignor to Britsol Babcock Inc., Waterbury, Conn.

Filed Apr. 3, 1981, Ser. No. 250,859

Int. Cl.³ H03H *7/38*

U.S. Cl. 375—36 **6 Claims**



1. Apparatus for coupling an AC signal to a communication line comprising:

a transformer having first and second windings for coupling said AC signal to said communication line, said second winding being connected to said communication line,

a first transistor having a linear region of operation and a saturated region of operation, a first terminal of said transistor being connected to a first terminal of said first winding, a second terminal of said transistor being connected to ground and said AC signal being connected to a third terminal of said transistor, said transistor applying said AC signal to said transformer when operating in said linear region and grounding said first terminal of said first winding when operating in said saturated region,

means for biasing said transistor for linear operation when said high frequency signal is to be transmitted and for saturating said transistor when said high frequency signal is not to be transmitted,

a second transistor having a nonconducting region of operation and a saturated region of operation, a first terminal of said second transistor being connected to a power supply,

means for biasing said second transistor so that it is saturated when said AC signal is to be transmitted and is nonconductive when said AC signal is not to be transmitted, and

a low pass filter connected between a second terminal of said first winding and a second terminal of said second transistor, said filter applying to said winding power from said power supply when said AC signal is to be transmitted and, when said AC signal is not to be transmitted, said first transistor and said filter providing a short circuit for AC signals across said first winding of said transformer.

4,384,357

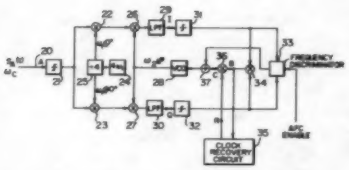
SELF-SYNCHRONIZATION CIRCUIT FOR A FFSK OR MSK DEMODULATOR

Rudi deBuda, and Charles E. Jagger, both of Toronto, Canada, assignors to Canadian Patens & Development Limited, Ottawa, Canada

Filed Apr. 3, 1981, Ser. No. 250,757

Int. Cl.³ H03D *3/18, 3/24*

U.S. Cl. 375—81 **4 Claims**



1. In a demodulating receiver, a self-synchronization circuit for generating a carrier reference signal from an incoming Fast FSK or MSK signal comrising:

first means for splitting the incoming signal into two circuit paths;

second means for frequency shifting the incoming signal in each circuit path by a frequency signal substantially equal to the carrier frequency to provide an in-phase signal along one circuit path and a quadrature phase signal along the other circuit path, the frequency shifting means having an oscillator circuit controllable in frequency and phase;

first multiplier means for multiplying the in-phase and quadrature signals;

clock recovery circuit means for determining the clock frequency from the output of the first multiplier means; and

second multiplier means for multiplying the output of the first multiplier means and the clock recovery circuit means for providing a carrier phase signal to the controllable oscillator circuit.

4,384,358

SPACE-DIVERSITY BROAD-BAND DIGITAL RADIO RECEIVER

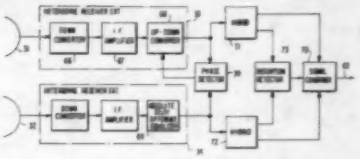
Haruo Shiki, and Toru Ohmori, both of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Jan. 27, 1981, Ser. No. 228,841

Claims priority, application Japan, Jan. 28, 1980, 55-8556; Jul. 7, 1980, 55-92531

Int. Cl.³ H04B *15/00*

U.S. Cl. 375—100 **7 Claims**



1. A space-diversity broad-band digital radio receiver comprising:

first and second heterodyne receiver circuits for carrying out space-diversity heterodyne reception to produce a first and a second intermediate frequency signal, respectively, said first and said second intermediate frequency signals having frequencies variable in a common intermediate frequency band, an approximately zero average level difference, and an approximately zero phase difference, each of said first and said second intermediate frequency signals being capable of having an amplitude dispersion;

first amplitude versus frequency dispersion detecting means for detecting the amplitude versus frequency dispersion of said first intermediate frequency signal to produce a first output signal having a first amplitude variable with the detected amplitude versus frequency dispersion;

second amplitude versus frequency dispersion detecting means for detecting the amplitude versus frequency dispersion of said second intermediate frequency signal to produce a second output signal having a second amplitude variable with the amplitude versus frequency dispersion of said second intermediate frequency signal; and

combining means responsive to said first and said second output signals for combining said first and said second intermediate frequency signals to produce a combined intermediate frequency signal by suppressing that one of said first and said second intermediate frequency signals in which the amplitude versus frequency dispersion is the greater.

4,384,359

TOMOGRAPHIC APPARATUS FOR THE PRODUCTION OF TRANSVERSE LAYER IMAGES

Kurt Franke, Erlangen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Nov. 12, 1980, Ser. No. 206,136

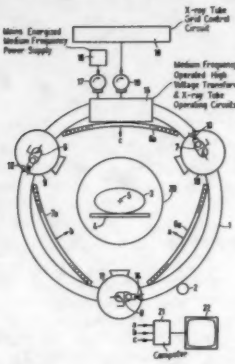
Claims priority, application Fed. Rep. of Germany, Dec. 19, 1979, 2951222

Int. Cl.³ G03B *41/16*

U.S. Cl. 378—9 **1 Claim**

1. Tomographic apparatus for the production of transverse layer images of a radiography subject, comprising a radiation measuring arrangement with a plurality of x-ray sources each of which generates an x-ray beam penetrating the radiography subject, the cross-sectional extent of each said x-ray beam, perpendicular to the layer plane, being approximately equal to the layer thickness, and with a radiation receiver which determines the radiation intensity behind the subject, a rotating frame for rotating the x-ray sources in the layer plane for the scanning of the radiography subject from different projections, and a measured value converter for transformation of the

signals delivered by the radiation receiver into a layer image, a high voltage transformer operated with a medium frequency which is higher than the mains frequency, a high voltage circuit for energizing said plurality of x-ray sources, said high voltage circuit (15) being mounted on said rotating frame and comprising the secondary of the x-ray high voltage transformer, said plurality of x-ray sources comprising grid-controlled x-ray tubes (6, 7, 8) each connected with said high


X-ray Tube Grid Control Circuit
Mains Energized Medium Frequency Power Supply
Medium Frequency Operated High Voltage Transformer & X-ray Tube Operating Circuits
Computer

voltage circuit, filament transformers (12, 13, 14) for respectively supplying filament current to said grid-controlled x-ray tubes, a plurality of separate housings (9, 10, 11) on said rotating frame containing said grid-controlled x-ray tubes and said filament transformers, and a grid control circuit (18) connected with the grids of said grid-controlled x-ray tubes on the rotating frame (1) for controlling pulsing operation of said x-ray sources during scanning.

4,384,360

X-RAY APPARATUS

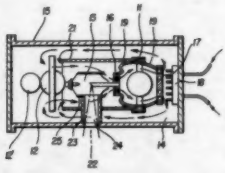
Kenichiro Kitadate, Higashimurayama; Yoshinori Tanimoto, and Hirosi Mizuguti, both of Hachioji, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Continuation of Ser. No. 70,682, Aug. 29, 1979, abandoned. This application Apr. 28, 1981, Ser. No. 258,057

Claims priority, application Japan, Sep. 12, 1978, 53-111307

Int. Cl.³ H05G *1/02*

U.S. Cl. 378—202 **19 Claims**



1. An X-ray apparatus comprising:

a casing filled with an insulating gas,

a high voltage transformer in said casing,

an X-ray tube mounted to said casing within said casing and connected to said transformer,

an X-ray shielding member attached to the wall of said X-ray tube and defining a window through which the X-rays radially emitted by said X-ray tube are released in a predetermined direction,

means defining an X-ray path through which said X-rays released through said window of said X-ray shielding member are directed so as not to be radiated on said insulating gas,

said insulating gas surrounding and insulating said high voltage transformer and said X-ray tube,

said X-ray path defining means preventing ionization of said insulating gas by preventing X-rays emitted through said window from impinging on said insulating gas, and

said high voltage transformer comprising a high tension coil wound in an outwardly stepped configuration toward each end thereof, insulating paper exposed on the outer surface of said coil and defining a stepped surface configuration, and a plurality of electrodes each having a length short of a full turn about said coil and wound about one stepped portion of said insulating paper, said electrodes having an equal potential to said coil.

4,384,361

SELECTIVE CALLING RECEIVER

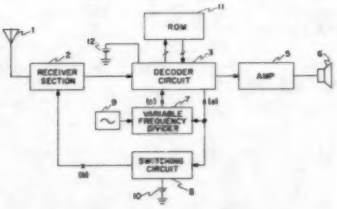
Masaru Masaki, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Sep. 24, 1980, Ser. No. 190,352

Claims priority, application Japan, Sep. 29, 1979, 54-134805[U]

Int. Cl.³ H04B *5/04*

U.S. Cl. 455—31 **9 Claims**

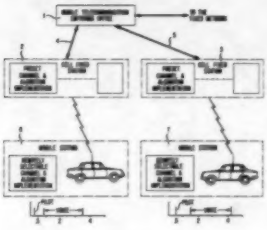


1. A selective calling receiver comprising a receiver section means for demodulating a carrier wave which is modulated by a calling signal, power source means, decoder means connected to the output of said receiver section means for selectively decoding the demodulated calling signals and controlling a receiving operation of said selective calling receiver, CMOS microprocessor means requiring a first level of power for performing a decoding operation and a second level of power when not performing said decoding operation, said decoder means including a clock terminal and a power source terminal to which the output of said power source means is applied, means for generating first clock pulses, and means for continuously supplying said first clock pulses to said clock terminal during periods while said receiver section means is operating, said microprocessor means receiving said first clock pulses from said clock terminal which provide said first level of power to enable said decoding, and for controlling at least one of the number and rate of said first clock pulses to provide second clock pulses and for supplying said second clock pulses to said clock terminal during periods while said receiver section means is not operating, said second clock pulses received by said microprocessor means corresponding to said second level of power when the decoding operation is not being performed.

4,384,362
RADIO COMMUNICATION SYSTEM USING INFORMATION DERIVATION ALGORITHM COLORING FOR SUPPRESSING COCHANNEL INTERFERENCE

Kenneth W. Leland, Howell, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jul. 18, 1980, Ser. No. 169,966
Int. Cl.³ H04B 3/60
U.S. Cl. 455—33 24 Claims



1. In a cellular, channel reuse, mobile radiotelephone system including plural stations in a mobile service area, each station being equipped with at least one radio transceiver (FIG. 3) for operation on a frequency channel, the system being characterized in that each transceiver includes

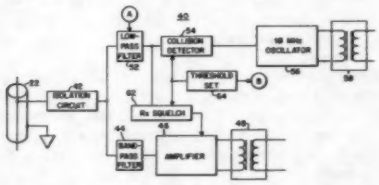
means (17, 18, 66) for effecting transceiver operation with respect to said channel according to a selectable implementation of a predetermined transceiver algorithm, and

means (48, 49) for systematically setting said effecting means to use one of a predetermined plurality of different implementations of said algorithm according to the location of the transceiver, in relation to a predetermined systematic pattern of distribution of use of said implementations, in the mobile service area.

4,384,363
TRANSCEIVER FOR LOCAL NETWORK USING CARRIER-SENSE MULTIPLE ACCESS/COLLISION DETECTION

Jesse B. Lipcon, Harvard, Mass., assignor to Digital Equipment Corporation, Maynard, Mass.

Filed May 26, 1981, Ser No. 267,394
Int. Cl.³ H04B 1/00, 1/40
U.S. Cl. 455—58 1 Claim



1. In a transceiver for a station of a carrier-sense multiple access network with network access controlled by collision detection, wherein the transceiver includes a transmitter and a receiver, the transmitter includes a current source output stage, the receiver includes collision detection means for detecting the presence of two or more stations in the network transmitting simultaneously, and the transmitter current source and receiver collision detection means are coupled via a coaxial cable which provides a communications channel for the network, the improvement comprising:

the transmitter current source being constructed of emitter-coupled logic which requires d.c. power within a first, specified voltage range and an output voltage not exceeding a level at which the current source circuitry becomes a voltage source, such level being termed the compliance limit of the current source;

the receiver's collision detection means requiring d.c. power within a second voltage range;

first power supply means for supplying voltage within the first range;

second power supply means for supplying voltage within the second range;

the first range extending between a first voltage and a second voltage;

the second range extending between said second voltage and a third voltage; and

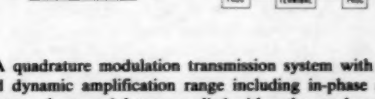
the third voltage also being the voltage on the coaxial cable with no signal imposed thereon;

whereby the voltage swing at the output of the transmitter current source can extend from the third voltage to the compliance limit of the transmitter current source, which is in the first range, in the event of a collision between two or more transmitters, thereby preventing saturation of the current source and making the collision condition detectable by the collision detection means.

4,384,364
QUADRATURE MODULATION ARRANGEMENT WITH ENHANCED DYNAMIC AMPLIFICATION RANGE

Hansjuergen H. Henning, Summit, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Apr. 4, 1980, Ser. No. 137,276
Int. Cl.³ H04B 1/20, 11/00; G01R 23/14
U.S. Cl. 455—60 5 Claims



1. A quadrature modulation transmission system with extended dynamic amplification range including in-phase and quadrature-phase modulators supplied with orthogonal carrier waves from a common source and a line mixer combining in-phase and quadrature-phase components into a composite signal for application to a transmission line CHARACTERIZED IN THAT

a first relatively high-gain amplifier is provided in series with the in-phase modulator for low-level broadband components,

a second amplifier with lesser gain than said first amplifier is provided in series with the quadrature-phase modulator for high-level discrete-frequency components and

a common analog signal source furnishes an input to said first and second amplifiers in parallel.

4,384,365
SUPERHETERODYNE RECEIVER FREQUENCY TRACKING CIRCUIT

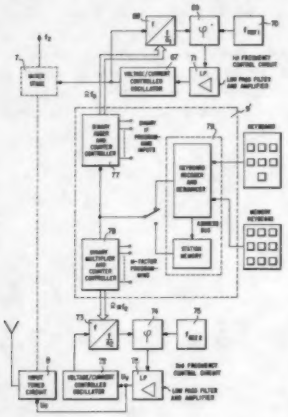
Christopher W. Malinowski, Untereisesheim, and Heinz Rinderle, Heilbronn, both of Fed. Rep. of Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Fed. Rep. of Germany

Continuation of Ser. No. 44,967, Jun. 4, 1979, Pat. No. 4,306,310, which is a continuation-in-part of Ser. No. 957,006, Nov. 2, 1978. This application Mar. 19, 1981, Ser. No. 245,603

Claims priority, application Fed. Rep. of Germany, Oct. 16, 1978, 2844936; Oct. 16, 1978, 2844938; Oct. 16, 1978, 2844939; Oct. 16, 1978, 2845005; Oct. 16, 1978, 2845006; Dec. 28, 1978, 2856397

Int. Cl.³ H04B 1/26

U.S. Cl. 455—183 **6 Claims**



1. In a superheterodyne signal receiver including an input circuit arranged to be tuned to a frequency to be received and including a signal controllable variable reactance element presenting a reactance whose value is adjusted by a tuning signal and determines the frequency to which the input circuit is tuned, and controllable means for producing a first alternating signal to be mixed with a received signal to produce an intermediate frequency signal, a synchronizing circuit comprising: a first frequency control circuit including said controllable means; a second frequency control circuit including a controllable sampling oscillator, separate from said controllable means, for producing a second alternating signal separate from the first alternating signal and means connected to respond to the frequency of the second alternating signal from said sampling oscillator to derive a signal related thereto and supplying that signal, as the tuning signal, to said controllable element; and first control signal generating means generating a first control signal and second control signal generating means for generating a second control signal, at least one of which control signals is a digital signal, said first control signal generating means being connected for supplying said first control signal to said first frequency control circuit for adjusting the frequency of the signal produced by said controllable means, and said second control signal generating means being connected for supplying said second control signal to said second frequency control circuit for adjusting the value of said tuning signal to tune said input circuit to a selected frequency, said first and second generating means maintaining a relationship between said first and second control signals such that the output frequency of said controllable means is adjusted to the value corresponding to the received signal frequency to which said input circuit is tuned, wherein at least one of said control circuits includes means connected to control the frequency of its respective alternating signal in response to the at least one digital signal.

4,384,366
INTERFERENCE COMPENSATION SYSTEM

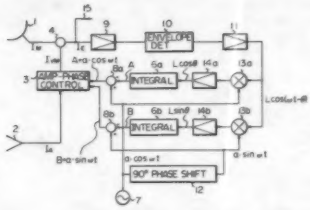
Toshiyuki Kaitsuka, Yokosuka, Japan, assignor to Nippon Telegraph & Tele. Public Corp., Tokyo, Japan

Filed Mar. 27, 1981, Ser. No. 248,464

Claims priority, application Japan, Mar. 28, 1980, 55-39093; Dec. 13, 1980, 55-175248

Int. Cl.³ H04B 1/06, 1/10

U.S. Cl. 455—278 **8 Claims**



8. An interference compensation system including a first input terminal for receiving an interference signal received from a signal source and having amplitude and phase direction and a second input terminal for receiving a desired signal and said interference signal received from said signal source, comprising:

oscillator means for providing a first sinusoidally time varying signal and a second sinusoidally time varying signal shifted approximately ninety degrees out-of-phase with respect to said first time varying signal, first and second integrator means for respectively providing first and second D.C. voltage signals, adder means including (1) a first adder for combining said first D.C. signal and said first sinusoidally time varying signal and (2) a second adder for combining said second D.C. signal and said second sinusoidally time varying signal for providing control signals,

an amplitude-phase control circuit connected to said adder means for receiving said control signals and said interference signal received by said first input terminal and including means for modifying the amplitude and phase direction of said interference signal received by said first terminal in accordance with said control signals and output means for providing said modified interference signal having the same amplitude but opposite in phase direction to the interference signal received by said second input terminal, and

signal combiner means responsive to said modified interference signal provided by said amplitude-phase control circuit in combination with said interference signal received by said second input terminal for producing a combined signal substantially free from said interference signal.

4,384,367
MDS RECEIVER

Charles T. King, Phoenix, and Bernard E. Sigmon, Tempe, both of Ariz., assignors to Theta-Com of California, Torrance, Calif.

Continuation of Ser. No. 120,815, Feb. 12, 1980, abandoned. This application Jun. 10, 1981, Ser. No. 272,133

Int. Cl.³ H04B 1/26

U.S. Cl. 455—325 **3 Claims**

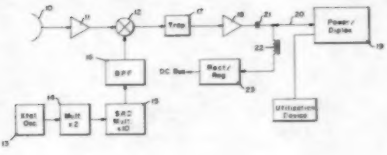
1. A single conversion superheterodyne type microwave receiver for frequency translating signals applied from a microwave antenna comprising:

input means for effecting an electrical connection to said microwave antenna;

first amplification means electrically connected to said input means for amplifying the electrical signal received by said microwave antenna;

a local oscillator including a step-recovery diode circuit and a first bandpass filter means, wherein said step-recovery diode circuit includes a crystal oscillator, a microstrip transmission line low-pass filter and matching structure and a step-recovery diode;

mixing means for electronically mixing the output of said first amplification means with that of said local oscillator to produce a second electrical signal;



second bandpass filter means electrically connected to said mixing means for passing predetermined frequencies of said second electrical signal to a second amplification means;

said second amplification means being electrically connected to said second bandpass filter means and being adapted to amplify the output thereof to predetermined levels;

power supply means for energizing said first and second amplification means, said mixing means, and said local oscillator; and

output means for effecting an electrical connection through said power supply means between said second amplification means and a utilization device.

4,384,368

INSULATED INSERT WITH HIGH ELECTRIC STRENGTH

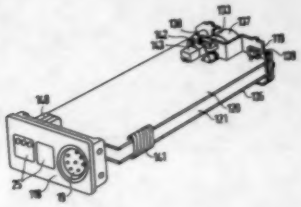
Bernd Rosenfeldt; Gerhard Weller, and Edmund Reis, all of Erlangen, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed May 8, 1981, Ser. No. 262,212

Claims priority, application Fed. Rep. of Germany, May 22, 1980, 3019645

Int. Cl.³ H04B 9/00

U.S. Cl. 455—602 **13 Claims**



1. An insulated insert assembly comprising an insulated insert with high electric strength for insertion into a device recess of a device housing, said insulated insert comprising a jacket housing (**94**) of highly insulating synthetic material, a layer packet comprised of at least two shielding plates (**122, 123**) of metallic material, and a printed circuit board structure (**120, 121**) seated between said shielding plates, and a transmission component carried by said layer packet, said layer packet together with said transmission component being designed so as to be insertable into the highly insulating jacket housing (**94**), characterized in that the jacket housing (**94**) is open only at the front side to provide a front opening, said insert having a front plate (**118**) carried by the layer packet (**120** through **123**) for closing the jacket housing at its front side, said front plate fitting tightly in its dimensions into the front opening of the jacket housing (**94**), said insert having a back part (**119**) at the back thereof, the layer packet comprising a printed circuit board structure formed of a prescribable number of printed circuit boards (**120, 121**) which are secured at the front side to the front plate (**118**) of the insert and are secured at the back to said back part (**119**), the two metallic shielding plates (**122, 123**) being connected to the front plate (**118**) of the insert and to the back part (**119**) partially by interfitting type connection and partially by a screw-type connection.

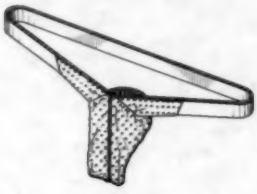
DESIGN PATENTS

GRANTED MAY 17, 1983

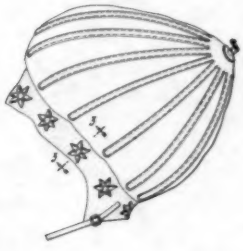
ERRATA

For CLASS	See PATENT NO.
D07–338	269,010
D07–308	269,011

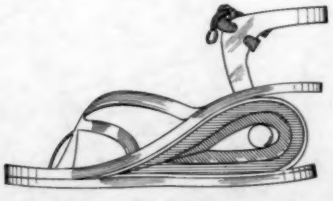
268,964
MEN'S UNDERWEAR
Edwin H. Riedell, 57370 29 Palms Hwy., Yucca Valley, Calif. 92284
Filed May 27, 1980, Ser. No. 153,532
Term of patent 14 years
Int. Cl. D2—*01*
U.S. Cl. D2—1



268,965
INFLATABLE, SWIMMING CAP, OR SIMILAR ARTICLE
Marlene J. Lebowitz, 424 New Jersey La., Placentia, Calif. 92670
Continuation-in-part of Ser. No. 966,796, Dec. 6, 1978. This application Aug. 4, 1980, Ser. No. 175,027
Term of patent 14 years
Int. Cl. D02—*03*
U.S. Cl. D2—236



268,966
SHOE
Gardner M. Smith, 415 N. 12th St., St. Louis, Mo. 63101
Filed Feb. 13, 1981, Ser. No. 234,413
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—294

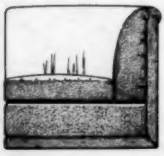


268,967
SCRUBBING MITTEN
Mohammad A. Sami, 3271 Gilbert, Huntington Beach, Calif. 92649
Filed Apr. 13, 1981, Ser. No. 253,989
Term of patent 14 years
Int. Cl. D02—*06*
U.S. Cl. D2—365

268,968
SCRUBBING GLOVE
Mohammad A. Sami, 3271 Gilbert, Huntington Beach, Calif. 92649
Filed Apr. 13, 1981, Ser. No. 253,988
Term of patent 14 years
Int. Cl. D02—*06*
U.S. Cl. D2—373

268,969
THREAD WINDER
Catherine L. Stadtmiller, 211 N. Felton St., Philadelphia, Pa. 19139
Filed May 1, 1981, Ser. No. 259,492
Term of patent 14 years
Int. Cl. D02—*07*
U.S. Cl. D3—23

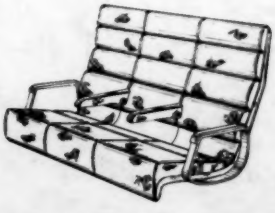
268,970
CHAIR
John Mascheroni, 200 E. 64th St., New York, N.Y. 10021
Filed Aug. 29, 1979, Ser. No. 70,778
The portion of the term of this patent subsequent to Apr. 27, 1996, has been disclaimed.
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—47



268,971
COMBINED FOLDABLE TABLE AND MULTIPLE SEAT UNIT
Richard G. Reineman, Newport Beach, Calif., assignor to Rol-Fol Table, Inc., Van Nuys, Calif.
Filed Dec. 10, 1980, Ser. No. 215,026
Term of patent 14 years
Int. Cl. D6—*05*
U.S. Cl. D6—45

268,972
VEHICLE SEAT OR THE LIKE
Thomas H. White, Issaquah, Wash., assignor to The Boeing Company, Seattle, Wash.
Filed Dec. 15, 1980, Ser. No. 216,728
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—48

268,973
VEHICLE SEAT OR THE LIKE
Thomas H. White, Issaquah, Wash., assignor to The Boeing Company, Seattle, Wash.
Filed Dec. 18, 1980, Ser. No. 217,944
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—48



268,974

CHEST OF DRAWERS OR SIMILAR ARTICLE

Henry W. Mower, Stevens Point, Wis.; Allen Seymour, Clayton, Ohio; Jerome P. Koziatek, Hinckley, Ohio, and Joseph G. Lendvay, Ravena, Ohio, assignors to Questor Corporation, Tampa, Fla.

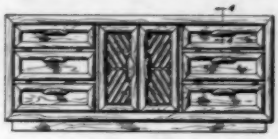
Filed Oct. 16, 1980, Ser. No. 197,487
The portion of the term of this patent subsequent to Dec. 28, 1996, has been disclaimed.
Term of patent 14 years
Int. Cl. D06—*04*
U.S. Cl. D6—154

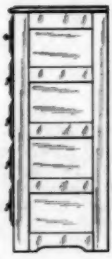
268,975

DRESSER OR THE LIKE

Hilco Woudstra, 1123 Forest Hills Dr., High Point, N.C. 27262

Filed Feb. 11, 1981, Ser. No. 233,441
Term of patent 14 years
Int. Cl. D06—*04*
U.S. Cl. D6—164





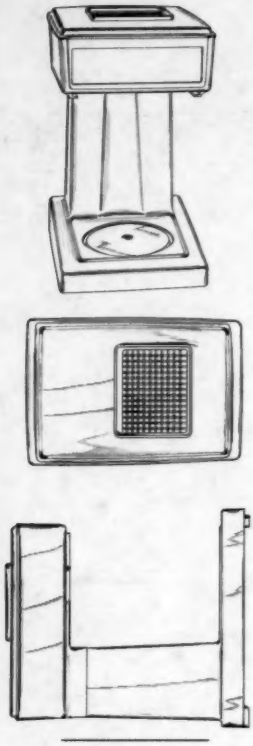
268,976

PORTABLE ORTHOPEDIC BACK REST

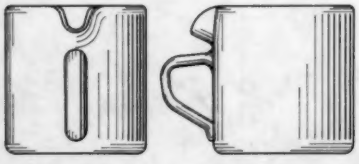
Robert M. Ross, Redondo Beach, Calif., assignor to Accu-Back, Inc., Carson, Calif.

Filed Mar. 5, 1981, Ser. No. 240,623
Term of patent 14 years
Int. Cl. D6—*09*
U.S. Cl. D6—201

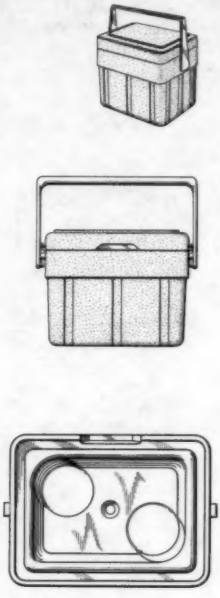
268,977
COFFEE BREWER
Vincent G. Marotta, 18801 S. Park Blvd., Shaker Heights, Ohio 44122
Filed Jul. 8, 1980, Ser. No. 166,897
Term of patent 14 years
Int. Cl. D07—*02*
U.S. Cl. D7—309



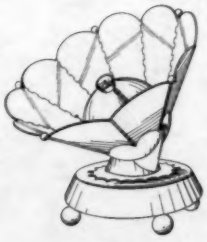
268,978
AMUSEMENT PITCHER
Edward M. Strieber, 5400 Highland Crest Dr., Austin, Tex. 78731
Filed Jun. 29, 1981, Ser. No. 278,412
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—319



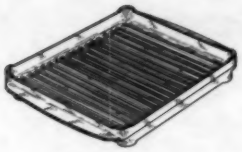
268,979
INSULATED CONTAINER
Craig Ruxton, Katy, Tex., assignor to Igloo Corporation, Houston, Tex.
Filed Sep. 10, 1980, Ser. No. 186,053
Term of patent 14 years
Int. Cl. D07—*07*
U.S. Cl. D7—77



268,980
SOLAR OVEN
Samuel F. Erwin, P.O. Box 2209, Sedona, Ariz. 86336
Filed May 11, 1981, Ser. No. 262,567
Term of patent 14 years
Int. Cl. D07—*02*
U.S. Cl. D7—324

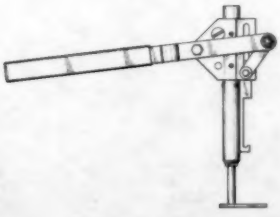


268,981
REVERSIBLE MICROWAVE ROASTING RACK
Wallace A. Monson, Big Lake, Minn., assignor to Litton Systems, Inc., Beverly Hills, Calif.
Filed Jan. 9, 1981, Ser. No. 223,671
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—359

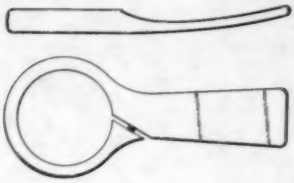


268,982
PRUNER
Christopher R. B. Harrison, Porthcawl, Wales, and Alan K. Pittaway, High Wycombe, England, assignors to Wilkinson Sword Limited, High Wycombe, England
Filed Jun. 7, 1979, Ser. No. 46,168
Claims priority, application United Kingdom, Dec. 20, 1978, 987765
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—5

268,983
TENSIONING TOOL
Jack T. Clements, Raytown, Mo., assignor to Standard Havens, Inc., Kansas City, Mo.
Filed Nov. 24, 1980, Ser. No. 209,856
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—44



268,984
DOOR KNOB ADAPTER
Rodney F. Bergen, Moorhead, Minn., assignor to Extend Incorporated, Moorhead, Minn.
Filed Dec. 19, 1980, Ser. No. 218,057
Term of patent 14 years
Int. Cl. D8—*06*
U.S. Cl. D8—308



268,985
HANDLE ADAPTED TO BE PARTIALLY RECESSED WITHIN A DOOR OF A COIN OPERATED LOCKER CABINET OR THE LIKE
Forest G. Stark, Jamestown, N.Y., assignor to American Locker Security Systems, Inc., Jamestown, N.Y.
Filed Apr. 27, 1981, Ser. No. 257,726
Term of patent 14 years
Int. Cl. D8—*06*
U.S. Cl. D8—313

268,986

HANDLE ADAPTED TO BE PARTIALLY RECESSED WITHIN A DOOR OF A COIN OPERATED LOCKER CABINET OR THE LIKE

Forest G. Stark, Jamestown, N.Y., assignor to American Locker Security Systems, Inc., Jamestown, N.Y.

Filed Oct. 6, 1980, Ser. No. 194,064

Term of patent 14 years

Int. Cl. D8—*06*

U.S. Cl. D8—314

268,987

BOTTLE

J. Weldon Smith, Columbia, S.C., assignor to Q-X Industries, Inc., Blythewood, S.C.

Filed Dec. 19, 1980, Ser. No. 218,451

Term of patent 14 years

Int. Cl. D9—*01*

U.S. Cl. D9—352

268,988

CONTAINER FOR PERFUME

Aaron Hirsh, 8 Chatham St., Deer Park, N.Y. 11729

Filed Mar. 2, 1981, Ser. No. 239,435

Term of patent 14 years

Int. Cl. D9—*01*

U.S. Cl. D9—354

268,989

COMBINED BOTTLE AND CAP

Livingston C. Douglas, Leonia, N.J., assignor to Coast Detergents, Inc., Los Angeles, Calif.

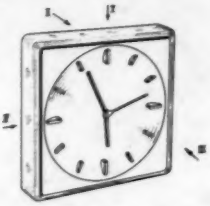
Filed Nov. 21, 1980, Ser. No. 209,268

Term of patent 14 years

Int. Cl. D9—*01*

U.S. Cl. D9—383

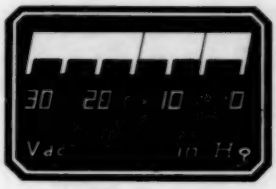
268,990
CLOCK
Walter Henkels, Holunderweg 1, D-5142 Hückelhoven, Fed. Rep. of Germany
Filed May 29, 1981, Ser. No. 268,388
Claims priority, application Fed. Rep. of Germany, Mar. 12, 1981, MR 135
Term of patent 14 years
Int. Cl. D10—*01*
U.S. Cl. D10—25



268,991
TEMPERATURE AND RESPIRATION PROBE
Ilhan M. Bilgutay, 837 Harbor Island, Clearwater, Fla. 33515
Filed Aug. 8, 1980, Ser. No. 176,416
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—103

268,992
FACE FOR MOTOR VEHICLE AIR PRESSURE GAUGE
John L. O'Driscoll, 41 Saranac Ave., Youngstown, Ohio 44505
Filed Mar. 18, 1981, Ser. No. 245,114
Term of patent 14 years
Int. Cl. D10—*07*
U.S. Cl. D10—125

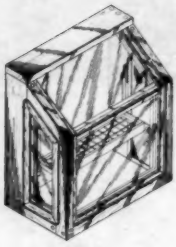
268,993
FACE FOR MOTOR VEHICLE MANIFOLD VACUUM GAUGE
John L. O'Driscoll, 41 Saranac Ave., Youngstown, Ohio 44505
Filed Mar. 18, 1981, Ser. No. 245,116
Term of patent 14 years
Int. Cl. D10—*07*
U.S. Cl. D10—125



268,994
FACE FOR MOTOR VEHICLE TACHOMETER
John L. O'Driscoll, 41 Saranac Ave., Youngstown, Ohio 44505
Filed Apr. 24, 1981, Ser. No. 257,147
Term of patent 14 years
Int. Cl. D10—*07*
U.S. Cl. D10—125

268,995
FACE FOR MOTOR VEHICLE OIL TEMPERATURE GAUGE
John L. O'Driscoll, 41 Saranac Ave., Youngstown, Ohio 44505
Filed Apr. 24, 1981, Ser. No. 257,160
Term of patent 14 years
Int. Cl. D10—*07*
U.S. Cl. D10—125

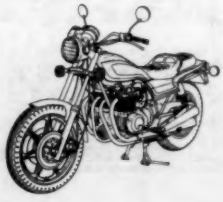
268,996
WINDOW GREENHOUSE
Gordon A. Elleby, Jr., Excelsior, and Phillip W. Westbrook, Mound, both of Minn., assignors to The Wesby Corporation, Excelsior, Minn.
Filed Dec. 1, 1980, Ser. No. 211,526
Term of patent 14 years
Int. Cl. D11—*02*; D25—*02*
U.S. Cl. D11—145



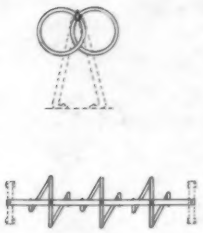
268,997
BUS
Yves Dubernard, Cerizay, France, assignor to S.A. Louis Heuliez, Cerizay, France
Filed Apr. 24, 1980, Ser. No. 143,457
Claims priority, application France, Jan. 26, 1978, 68; Dec. 20, 1978, 75; Nov. 2, 1979, 78
Term of patent 14 years
Int. Cl. D12—*08*
U.S. Cl. D12—84

268,998
MOTORCYCLE
Koichiro Ban, Tachikawa; Tsunemi Kawashima, Tokyo; Kazunori Yamada, Machida, and Toshiharu Shimizu, Tokorozawa, all of Japan, assignors to Yamaha Hatsudoki Kabushiki Kaisha, Japan
Filed Oct. 8, 1980, Ser. No. 194,960
Claims priority, application Japan, Apr. 23, 1980, 55-16373
Term of patent 14 years
Int. Cl. D12—*11*
U.S. Cl. D12—110

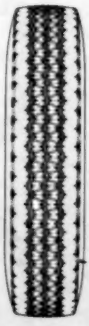
268,999
MOTORCYCLE
Kouji Nakano, Kawagoe, and Makoto Kodama, Kodaira, both of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Mar. 20, 1981, Ser. No. 246,054
Claims priority, application Japan, Sep. 23, 1980, 55-39432
Term of patent 14 years
Int. Cl. D12—*11*
U.S. Cl. D12—110



269,000
BICYCLE RACK
Leon E. Girard, 516 E. 14th St., Ames, Iowa 50015
Filed Apr. 7, 1981, Ser. No. 251,857
Term of patent 14 years
Int. Cl. D8—*10*
U.S. Cl. D12—115



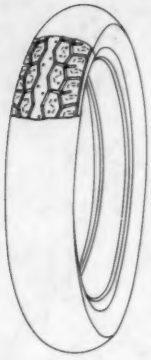
269,001
TIRE
Philip S. Hammond, Akron, and Richard T. Zimmerman, Tallmadge, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed May 14, 1981, Ser. No. 263,443
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—143



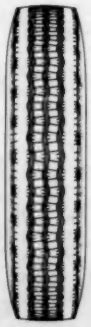
269,002
TIRE
Philip S. Hammond, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed May 14, 1981, Ser. No. 263,651
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—143

269,003
TIRE
Philip S. Hammond, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed May 14, 1981, Ser. No. 263,653
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—143

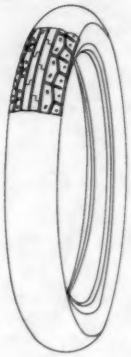
269,004
TIRE
Herbert Heuer, Korbach, Fed. Rep. of Germany, assignor to Continental Gummi-Werke Aktiengesellschaft, Hanover, Fed. Rep. of Germany
Filed Jul. 17, 1981, Ser. No. 284,512
Claims priority, application Fed. Rep. of Germany, Feb. 2, 1981, 82 MR 2445
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—146



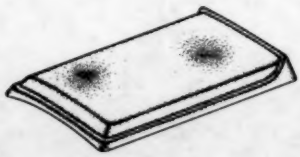
269,005
TIRE
Philip S. Hammond, Akron, and Richard T. Zimmerman, Tallmadge, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed May 14, 1981, Ser. No. 263,652
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—147



269,006
TIRE
Herbert Heuer, Korbach, Fed. Rep. of Germany, assignor to Continental Gummi-Werke Aktiengesellschaft, Hanover, Fed. Rep. of Germany
Filed Jul. 17, 1981, Ser. No. 284,513
Claims priority, application Fed. Rep. of Germany, Feb. 2, 1981, 82 MR 2417
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—148



269,007
CAMPER TOP
Roosevelt Rastegar, 56 El Pueblo Rd., Scotts Valley, Calif. 95066
Filed Aug. 4, 1980, Ser. No. 175,030
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—156

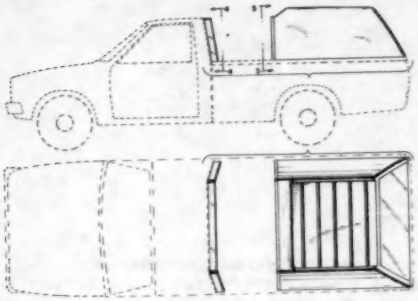


269,008

ENCLOSURE UNIT FOR THE BED OF A PICK-UP TRUCK

Andrew T. Kostanecki, New Canaan, Conn., and George Mileos, Riverdale, N.Y., assignors to Eastport Corporation, Lanham, Md.

Filed Sep. 12, 1980, Ser. No. 186,444
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—156

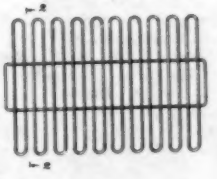


269,009

MICROWAVE ANTENNA GRID

Milton Mann, 1333 S. Beverly Glen, Los Angeles, Calif. 90024, and Richard P. Mann, 4273 Clear Valley Dr., Encino, Calif. 91436

Filed Dec. 8, 1980, Ser. No. 214,115
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—86

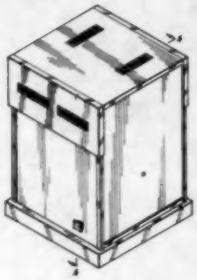


269,010

MERCHANDISING DISPLAY CABINET

Ivan Bennett, 144 Northwood St., Leederville, Australia

Filed Sep. 30, 1980, Ser. No. 192,186
Term of patent 14 years
Int. Cl. D15—*08*
U.S. Cl. D7—338

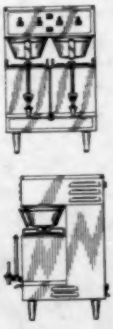


269,011

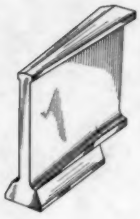
COFFEE BREWER

Dwight L. Stetler, Southgate, and Arthur L. Stoner, Signal Hill, both of Calif., assignors to Wilbur Curtis Company, Inc., Los Angeles, Calif.

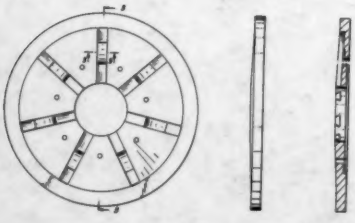
Filed Jul. 13, 1981, Ser. No. 282,808
Term of patent 14 years
Int. Cl. D15—*08*
U.S. Cl. D7—308



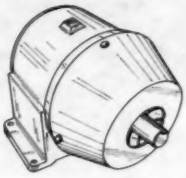
269,012
IMPELLER WHEEL BLADE FOR AN ABRASIVE BLASTING MACHINE
William G. G. Tutton, Belper, England, assignor to Auto Alloys R & D Limited, Derbyshire, England
Filed May 13, 1980, Ser. No. 149,550
Claims priority, application United Kingdom, Nov. 13, 1979, 7992342
Term of patent 14 years
Int. Cl. D15—*09*
U.S. Cl. D15—126



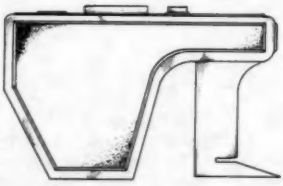
269,013
IMPELLER WHEEL FOR AN ABRASIVE BLASTING MACHINE
William G. G. Tutton, Belper, England, assignor to Auto Alloys R & D Limited, Derbyshire, England
Filed May 13, 1980, Ser. No. 149,551
Claims priority, application United Kingdom, Nov. 13, 1979, 7992341
Term of patent 14 years
Int. Cl. D15—*09*
U.S. Cl. D15—126



269,014
SPEED REDUCER APPARATUS
Donald Tumidajewicz, Windlake, and Fritz A. Callies, Menomonee Falls, both of Wis., assignors to Rexnord Inc., Milwaukee, Wis.
Filed Sep. 29, 1980, Ser. No. 191,738
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D15—149

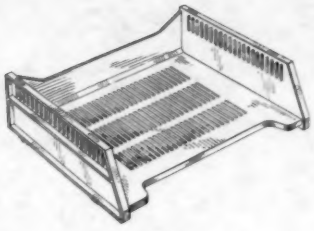


269,015
PROCESS COLOR SEPARATOR
Douglas K. Robinson, Edmonds, Wash., assignor to Thomas W. Secrest, Seattle, Wash.
Filed Oct. 17, 1978, Ser. No. 952,220
Term of patent 14 years
Int. Cl. D16—*04*
U.S. Cl. D16—33

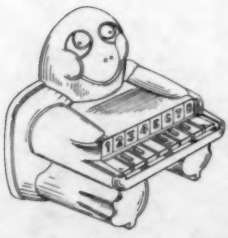


269,016
BALLPOINT PEN
Richard S. Garganese, North Kingston, R.I., assignor to Dino L. Garganese, North Kingston, R.I.
Filed Mar. 16, 1981, Ser. No. 244,027
Term of patent 14 years
Int. Cl. D19—*06*
U.S. Cl. D19—45

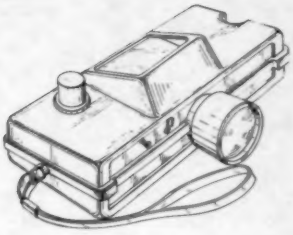
269,017
DESK TRAY
Tom J. Martin, North Delta, Canada, assignor to Oxford Pendaflex Canada Limited, Mississauga, Canada
Filed Jun. 12, 1980, Ser. No. 158,826
Term of patent 14 years
Int. Cl. D19—*02*
U.S. Cl. D19—92



269,018
TOY PIANO
Mel Appel, Nine Nottingham Rd., Livingston, N.J. 07039, and George Kress, Scotch Plains, N.J., assignors to Mel Appel, Livingston, N.J.
Filed Apr. 13, 1981, Ser. No. 253,093
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—64

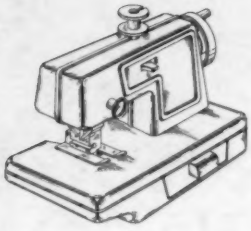


269,019
TOY CAMERA
Mel Appel, Nine Nottingham Rd., Livingston, N.J. 07039, and George Kress, Scotch Plains, N.J., assignors to Mel Appel, Livingston, N.J.
Filed Mar. 5, 1981, Ser. No. 240,782
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—110



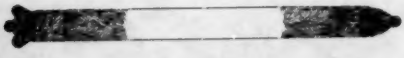
269,020
TOY DRILL
Mel Appel, Nine Nottingham Rd., Livingston, N.J. 07039, and George Kress, Scotch Plains, N.J., assignors to Mel Appel, Livingston, N.J.
Filed Apr. 13, 1981, Ser. No. 253,094
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—120

269,021
TOY SEWING MACHINE
Mel Appel, Nine Nottingham Rd., Livingston, N.J. 07039, and George Kress, Scotch Plains, N.J., assignors to Mel Appel, Livingston, N.J.
Filed Apr. 13, 1981, Ser. No. 253,241
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—122



269,022
TOY BARBECUE
Mel Appel, Nine Nottingham Rd., Livingston, N.J. 07039, and George Kress, Scotch Plains, N.J., assignors to Mel Appel, Livingston, N.J.
Filed Jul. 16, 1981, Ser. No. 284,067
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—122

269,023
TWO-HEADED STUFFED TOY OR SIMILAR ARTICLE
Francesca S. Hoerlein, 927 Euclid, Santa Monica, Calif. 90403
Filed Jan. 16, 1981, Ser. No. 225,518
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—149



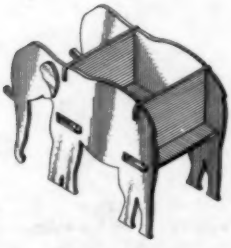
269,024
STUFFED TOY BEAR OR SIMILAR ARTICLE
Francesca S. Hoerlein, 857 Castac, Pacific Palisades, Calif. 90272
Filed Aug. 17, 1981, Ser. No. 293,357
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—159

269,025
STUFFED TOY DOG OR SIMILAR ARTICLE
Francesca S. Hoerlein, 927 Euclid St., Santa Monica, Calif. 90402
Filed Jan. 26, 1981, Ser. No. 228,255
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—161

269,026
STUFFED TOY DOG WITH HAT OR SIMILAR ARTICLE
Francesca S. Hoerlein, 857 Castac, Pacific Palisades, Calif. 90272
Continuation-in-part of Ser. No. 228,255, Jan. 26, 1981. This application Aug. 17, 1981, Ser. No. 293,356
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—161

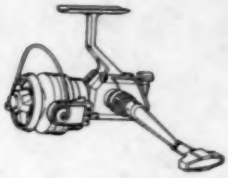
269,027
STUFFED TOY DOG WITH EYELASHES OR SIMILAR ARTICLE
Francesca S. Hoerlein, 857 Castac, Pacific Palisades, Calif. 90272
Continuation-in-part of Ser. No. 228,255, Jan. 26, 1981. This application Nov. 2, 1981, Ser. No. 317,074
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—161

269,028
SIMULATIVE TOY BOX
Ronald J. Gardner, 215 Belmont Ct. East, North Tonawanda, N.Y. 14120
Filed Jan. 2, 1981, Ser. No. 222,024
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—162

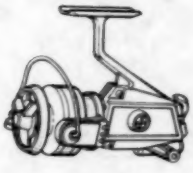


269,029
GOLF PUTTER HEAD
R. Pete Lowry, 3444 Scott Cir., Salt Lake City, Utah 84115
Filed Apr. 13, 1981, Ser. No. 253,131
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—219

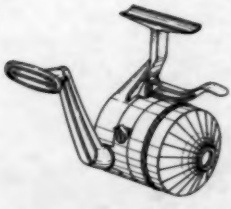
269,030
FISHING REEL
Etsuo Hiraishi, Hiroshima, and Masakazu Sakamoto, Fukuyama, both of Japan, assignors to Ryobi Limited, Hiroshima, Japan
Filed Sep. 8, 1980, Ser. No. 184,906
Claims priority, application Japan, Mar. 28, 1980, 55-12468
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—25



269,031
FISHING REEL
Yutaka Kanamaru, Kamakura, and Masakazu Sakamoto, Fukuyama, both of Japan, assignors to Ryobi Limited, Hiroshima, Japan
Filed Sep. 8, 1980, Ser. No. 184,907
Claims priority, application Japan, Mar. 28, 1980, 55-12469
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—25

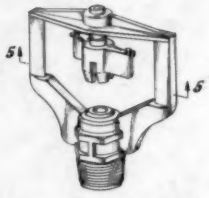


269,032
FISHING REEL
Henry L. Neufeld, Tulsa, Okla., assignor to Brunswick Corporation, Skokie, Ill.
Filed Dec. 22, 1980, Ser. No. 218,913
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—25

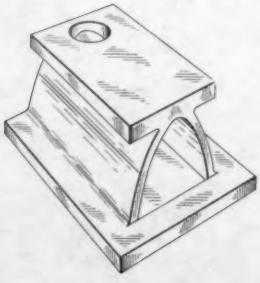


269,033
COVER FOR FISHING HOOKS
Bengt A. Johansson, Pl. 215 Kyrkesund, S-44060 Skarhamn, and Bo C. Larsson, Pl. 1401, S-44006 Grabo, both of Sweden
Filed Oct. 8, 1980, Ser. No. 195,541
Claims priority, application Sweden, Apr. 9, 1980, 800728
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—30

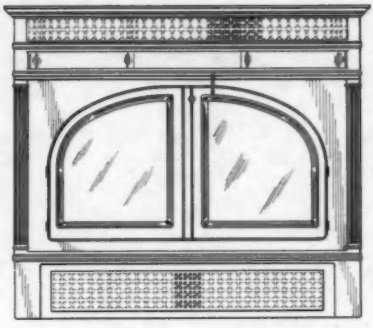
269,034
IRRIGATION SPRAY NOZZLE
William A. Wood, Glendora, Calif., assignor to Rain Bird Sprinkler Mfg. Corp., Glendora, Calif.
Filed Oct. 27, 1980, Ser. No. 201,011
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—35



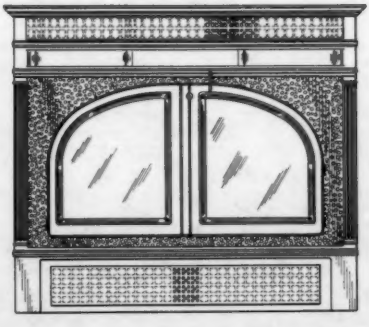
269,035
CAST STOVE BODY
Frank Hall, 640 NW. 231st St., Hillsboro, Oreg. 97123, and Michael D. Chase, 6145 SW. 68th Ct., Portland, Oreg. 97223
Filed Nov. 25, 1980, Ser. No. 210,399
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—93



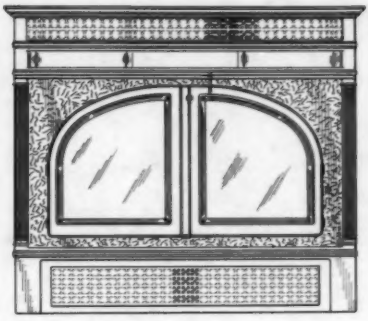
269,036
STOVE FACE PLATE
Paul B. Bortz, North Ferrisburg, Vt., assignor to Vermont Stove Company, Inc., Shelburne, Vt.
Filed May 13, 1981, Ser. No. 263,292
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—128



269,037
STOVE FACE PLATE
Paul B. Bortz, North Ferrisburg, Vt., assignor to Vermont Stove Company, Inc., Shelburne, Vt.
Filed Jul. 17, 1981, Ser. No. 284,369
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—128

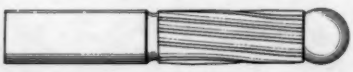


269,038
STOVE FACE PLATE
Paul B. Bortz, North Ferrisburg, Vt., assignor to Vermont Stove Company, Inc., Shelburne, Vt.
Filed Jul. 17, 1981, Ser. No. 284,370
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—128



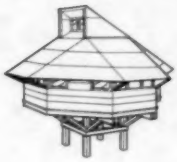
269,039
VIBRATOR FOR MIXING DENTAL COMPOUNDS OR THE LIKE
Morton Klein, 7 Beach Plum Dr., Northport, N.Y. 11768
Filed Jun. 16, 1980, Ser. No. 159,537
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—10

269,040
DENTAL BUR
Milton G. Deemer, 3982 Hackberry Pl., Castro Valley, Calif. 94546
Filed Aug. 18, 1980, Ser. No. 179,033
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—16

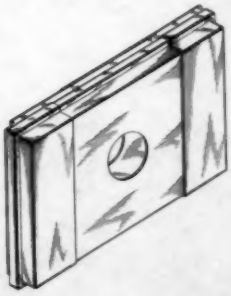


269,041
ORTHOPEDIC PIN GUIDE
Charles L. Dohogne, San Pedro, Calif., assignor to Ace Orthopedic Manufacturing Inc., Los Angeles, Calif.
Filed Oct. 14, 1980, Ser. No. 196,690
Term of patent 14 years
Int. Cl. 14—*02*
U.S. Cl. D24—26

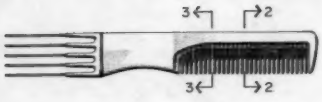
269,042
VACATION CABIN
James J. Montalto, 1666 State Rd., Cuyahoga Falls, Ohio 44223
Filed Aug. 22, 1980, Ser. No. 180,505
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D25—23



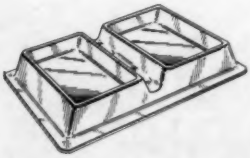
269,043
WINDOW ADAPTER FOR STOVE FLUE PIPE
Richard Resnicoff, 6 Hickory La., Cherry Hill, N.J. 08003, and James A. Miller, RD. 7-Box 7769, Stroudsburg, Pa. 18360
Filed Mar. 13, 1980, Ser. No. 130,061
Term of patent 14 years
Int. Cl. D25—*02*
U.S. Cl. D25—52



269,044
COMB
Anthony Battaglia, 386 NE. 191 St., North Miami Beach, Fla. 33178
Filed Aug. 27, 1980, Ser. No. 181,683
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—25

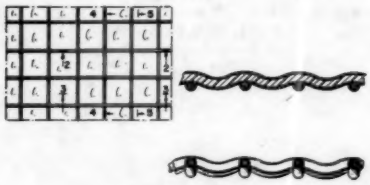


269,045
FEED PAN
Harlan J. Easton, R.R. 3, Blooming Prairie, Minn. 55917
Filed Apr. 17, 1981, Ser. No. 255,052
Term of patent 14 years
Int. Cl. D30—*03*
U.S. Cl. D30—16

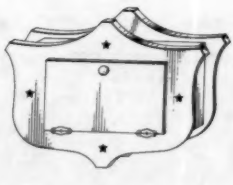


269,046
BARREL COMPOSTER
Thomas Faul, Mississauga, Canada, assignor to Barclay Rothschild Manufacturing Ltd., Toronto, Canada
Filed Nov. 25, 1980, Ser. No. 210,265
Term of patent 14 years
Int. Cl. D7—*99*
U.S. Cl. D34—4

269,047
REINFORCED PLASTIC FILM
Thomas C. Hendrickson, South River, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.
Continuation-in-part of Ser. No. 51,332, Jun. 22, 1979, abandoned, which is a continuation of Ser. No. 688,494, May 20, 1976, abandoned. This application Nov. 9, 1979, Ser. No. 92,813
Term of patent 14 years
Int. Cl. D05—*06*
U.S. Cl. D92—1.1



269,048
MAIL BOX
Richard M. M. Fruchtl, 1104 S. Third St., Effingham, Ill. 62401
Filed Aug. 31, 1979, Ser. No. 71,788
Term of patent 14 years
Int. Cl. D99—*00*
U.S. Cl. D99—33



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 17TH DAY OF MAY, 1983

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A B Gemla Plast: *See*—
Nilsson, Gosta; and Lundin, Hans, 4,383,477, Cl. 98-41.0AV.

Aaron, W. Scott; Kinser, Donald L.; and Quinby, Thomas C., to United States of America, Energy. Cermets and method for making same. 4,383,855, Cl. 419-19.000.

Accinni, Roberto: *See*—
Bartorelli, Alberto; and Accinni, Roberto, 4,383,985, Cl. 424-1.000.

Ackland, Bryan D.; Burr, David J.; and Weste, Neil H. E., to Bell Telephone Laboratories, Incorporated. Time warp signal recognition processor for matching signal patterns. 4,384,273, Cl. 382-34.000.

Adolf Illig Maschinenbau GmbH & Co.: *See*—
Kiefer, Gunther; and Rucker, Dieter, 4,383,815, Cl. 425-387.100.

Agency of Industrial Science & Technology: *See*—
Jido, Morio, 4,383,767, Cl. 366-154.000.

Agfa-Gevaert AG: *See*—
Koepke, Gunther; Frenken, Hans; Bassmann, Heinrich; and Browatzki, Kurt, 4,384,015, Cl. 427-402.000.

Agfa-Gevaert Aktiengesellschaft: *See*—
Fergg, Berthold; Osegowitsch, Viktor; and Viehrig, Wolfgang, 4,383,748, Cl. 354-179.000.

Agostini, Luigi: *See*—
Schatteman, Etienne A. M.; and Agostini, Luigi, 4,384,310, Cl. 360-92.000.

Ahrendt, Gerhard; Benz, Roland; Engenhart, Reinhold; and Schmidt, Viktor, to Locke Apparate-Bau GmbH. Yarn storage device. 4,383,655, Cl. 242-47.000.

Ahuja, Sudhir R., to Bell Telephone Laboratories, Incorporated. Store group bus allocation system. 4,384,323, Cl. 364-200.000.

Air Preheater Company, Inc., The: *See*—
Bellows, Kenneth O., 4,383,572, Cl. 165-5.000.

Ajinomoto Company Incorporated: *See*—
Kitamura, Nobuyoshi; Ito, Nobuo; and Takeuchi, Koji, 4,384,059, Cl. 524-100.000.

Akimov, Boris I.: *See*—
Azarevich, Gennady M.; Maximov, Jury V.; Akimov, Boris I.; and Gusyatsky, Iosif A., 4,383,427, Cl. 72-71.000.

Akita, Sigeyuki; and Tanaka, Hiroaki, to Nippon Soken, Inc. Temperature responsive astable multivibrator. 4,384,262, Cl. 331-66.000.

Aktiebolaget Bofors: *See*—
Vogl, Georg; Moller, Bo; and Soderlindh, Michel, 4,383,741, Cl. 350-538.000.

Akzo N.V.: *See*—
Spanjersberg, Albertus C.; Mink, Hans G.; and Barwegen, Johannes H. M., 4,383,644, Cl. 239-3.000.

Alander, Kaarina. Procedure for making angle joints and angle jointing unit for picture frames. 4,383,781, Cl. 403-402.000.

Alarie, Yves C.: *See*—
Karol, Meryl H.; and Alarie, Yves C., 4,383,984, Cl. 424-1.000.

Albright & Wilson Limited: *See*—
Renton, Stanley, 4,383,898, Cl. 204-35.00R.

Alco Foodservice Equipment Company: *See*—
Mielnicki, Joseph, 4,383,367, Cl. 30-279.00R.

Alexander, John D. Hand-held buffing-polishing machine. 4,383,345, Cl. 15-97.00R.

Alfa-Laval AB: *See*—
Hovstadius, Gunnar, 4,383,639, Cl. 494-43.000.

Aliprandi, Lucio M., to Farfisa S.p.A. Musical bellows instrument provided with an electro-pneumatic control device operated by the bellows movement. 4,383,463, Cl. 84-1.270.

Allen, Harry L., Jr.; and Stewart, Michael J., to Great Lakes Power Products, Inc. Drive assembly for inboard speedboat. 4,383,829, Cl. 440-75.000.

Allerding, Volker; Borchers, Heinz; and Schellstede, Hermann, to Vereinigte Flugtechnische Werke GmbH. Safety construction for aircraft. 4,383,666, Cl. 244-118.500.

Allgood, Robert N.; and Kelley, Stephen H., to Motorola, Inc. Digital to analog converter. 4,384,277, Cl. 340-347.0DA.

Allied Corporation: *See*—
Figiel, Francis J.; and Osterman, Harry F., 4,383,645, Cl. 239-13.000.
Phillips, Benjamin A., 4,383,416, Cl. 62-101.000.
Schilfke, Peter; and Walls, Robert R., 4,383,494, Cl. 118-50.000.

Allis-Chalmers Corporation: *See*—
Couperus, Egbert, 4,383,651, Cl. 241-81.000.
Schucker, Thomas R., 4,383,798, Cl. 415-150.000.

Almanza, Maximino: *See*—
Giordano, George P.; Almanza, Maximino; Eberts, Allen F.; and La Dow, William R., 4,383,386, Cl. 46-14.000.

Alongi, Robert E.; Yates, Robert E.; and Leonard, John P., to United States of America, Army. Ideal trajectory shaping for anti-armor missiles via gimbal angle controller autopilot. 4,383,662, Cl. 244-3.150.

Altman, Murray. Bathtub self-cleaning system. 4,383,341, Cl. 4-662.000.

Alvarez, Fernando D. Q., to Consejo Nacional de Ciencia y Technologia of Mexico. Explosion-proof device for measuring liquid levels. 4,384,184, Cl. 200-84.00C.

Ambico Inc.: *See*—
Stravitz, David M., 4,383,735, Cl. 350-318.000.

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Martin, John H. E. J.; Labeda, David P.; Korshalla, Joseph D.; Borders, Donald B.; and Testa, Raymond T., 4,384,043, Cl. 435-71.000.
Szucs, Stephen T., 4,383,848, Cl. 71-88.000.

American General Supply Company: *See*—
White, Herbert A., 4,383,570, Cl. 164-57.100.

American Hoechst Corporation: *See*—
Gillich, Thomas N.; Walls, John E.; Wanat, Stanley F.; and Rozell, William J., 4,383,897, Cl. 204-33.000.

American Medical Systems, Inc.: *See*—
Scott, F. Brantley; and Burton, John H., 4,383,525, Cl. 128-79.000.

American Microsystems, Inc.: *See*—
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American Optical Corporation: *See*—
Croft, George T.; and Hovey, Richard J., 4,383,956, Cl. 264-49.000.

American Standard Inc.: *See*—
Darrow, John O. G., 4,384,250, Cl. 324-161.000.

AMP Incorporated: *See*—
Casey, Daniel T., 4,383,364, Cl. 29-863.000.
Kautz, Jon F., 4,383,361, Cl. 29-739.000.

Anderson-Cook, Inc.: *See*—
Jungesjo, Harald N., 4,383,428, Cl. 72-88.000.

Andis Company: *See*—
Andis, Matthew L., 4,383,366, Cl. 30-221.000.

Andis, Matthew L., to Andis Company. Blade driving assembly for hair clipper. 4,383,366, Cl. 30-221.000.

Ando, Toshinari: *See*—
Shimamoto, Susumu; Ando, Toshinari; Tsuji, Hiroshi; Sato, Takashi; and Hattatori, Yasuhide, 4,384,265, Cl. 335-216.000.

Anheuser-Busch, Incorporated: *See*—
Teng, James; and Lucas, James M., 4,383,988, Cl. 424-68.000.

Anzai, Kuniaki: *See*—
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Anzarut, Norman I.: *See*—
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Aoyama, Toshimi; Kato, Bonpei; Tohda, Hiroyuki; Tachibana, Eiichi; and Hikosaka, Shinichi, to Dai Nippon Insatsu Kabushiki Kaisha; and Tokyo Ohka Kogyo Kabushiki Kaisha. Process for producing gravure printing plates. 4,384,011, Cl. 427-54.100.

Applied Polymer Technology, Incorporated: *See*—
Baker, Richard L., 4,384,083, Cl. 525-420.500.

Aquino, Richard A., to Sherwood Medical Company. Syringe tray. 4,383,615, Cl. 211-60.00R.

Arai, Kenichiro, to Shinshu Seiki Kabushiki Kaisha; and Kabushiki Kaisha Suwa Seikosha. Serial printer. 4,383,773, Cl. 400-156.300.

Araki, Shingo; and Igase, Tsutomu, to Dainippon Ink & Chemicals, Inc. Colored polyester composition. 4,384,060, Cl. 524-101.000.

Aratame, Kazuhisa, to Konishiroku Photo Industry Co., Ltd. Multiexposable motor-drive-film-winding camera. 4,383,746, Cl. 354-173.000.

Aratani, Matsuhiko: *See*—
Hashimoto, Masashi; Aratani, Matsuhiko; and Sawada, Kozo, 4,383,945, Cl. 260-239.00A.

Archer, John D.: *See*—
Dalgoutte, David G.; Burke, Peter F. C.; Archer, John D.; and Pragnell, Robert G., 4,383,732, Cl. 350-96.200.

Argabright, Perry A.; Rhudy, John S.; and Phillips, Brian L., to Marathon Oil Company. Mobility control agent. 4,383,930, Cl. 252-8.55D.

Ariizumi, Shoji: *See*—
Segawa, Makoto; and Ariizumi, Shoji, 4,384,220, Cl. 307-450.000.

Arlt, Dieter: *See*—
Jautelat, Manfred; Arlt, Dieter; Lantzsch, Reinhard; Fuchs, Rainer; Riebel, Hans-Jochem; Schroder, Rolf; and Harnisch, Horst, 4,384,114, Cl. 542-441.000.

Armstrong World Industries, Inc.: *See*—
Herweh, John E.; Garrett, Thomas B.; and Magnusson, Alan B., 4,384,094, Cl. 526-268.000.

Asahi-Dow Limited: *See*—
Tashiro, Hisao; Naito, Hirokuni; Takayama, Masayuki; and Yoshimura, Isao, 4,384,032, Cl. 429-249.000.

Asahi Glass Company Ltd.: *See*—
Ohashi, Koji; Hosoda, Yutaka; and Kitamura, Toshio, 4,383,963, Cl. 264-235.000.

Asahi Kasei Kogyo Kabushiki Kaisha: *See*—
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Ash, Stuart G.: *See*—
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Ashland Oil, Inc.: *See*—
Culbertson, Billy M.; and Aulabaugh, Ann E., 4,384,093, Cl. 526-266.000.

Asnis, Stanley E.; and Borzone, Rocco R., to Howmedica, Inc. Device for guiding the insertion of surgical wires into bone tissue. 4,383,527, Cl. 128-92.0EB.

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Paton, Boris E.; Lebedev, Vladimir K.; Kuchuk-Yatsenko, Sergei I.; Sakharnov, Vasily A.; Galian, Boris A.; Asoiants, Grigory B.; Vorobei, Mikhail F.; and Solodovnikov, Sergei A., 4,383,786, Cl. 409-299.000.

Assmann, Hans, to Oregon Etablissement fur Patentverwerting. Process for manufacturing a small firing tube opened at the two ends thereof for a hand grenade fuse. 4,383,470, Cl. 86-20.00R.

Atago, Takeshi; and Manaka, Toshio, to Hitachi, Ltd. Engine rotation speed control system. 4,383,506, Cl. 123-179.00G.

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Dehm, David C., 4,384,089, Cl. 526-159.000.
Smith, Robert H., 4,383,837, Cl. 48-197.00R.

Atlas Powder Company: *See*—
Wade, Charles G.; and Fillman, Harold T., 4,383,873, Cl. 149-2.000.

Audibert, Francois; Trambourze, Pierre; and Van Landeghem, Hugo, deceased (by Van Landeghem, Heynderick R., legal representative), to Institut Francais du Petrole. Process and apparatus for thermally converting used or waste tires to materials usable as fuels. 4,384,151, Cl. 585-241.000.

Aulabaugh, Ann E.: *See*—
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Aurora Products Canada Limited: *See*—
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Avella, Frank S.; and Matthews, Charles, to Plan Hold Corporation. Drafting apparatus. 4,383,375, Cl. 33-437.000.

Avon Products, Inc.: *See*—
Galante, Gary, 4,384,058, Cl. 524-32.000.

Avril, Arthur C. Machine for drying and mixing granular materials. 4,383,379, Cl. 34-128.000.

Ayano, Satoshi; Gaku, Morio; Ikeguchi, Nobuyuki; Kinbara, Hidenori; and Osaki, Yasunari, to Mitsubishi Gas Chemical Company, Inc. Curable resin composition. 4,383,903, Cl. 204-159.160.

Azarevich, Gennady M.; Maximov, Jury V.; Akimov, Boris I.; and Gusyatsky, Iosif A. Apparatus for the machining of cylindrical surfaces. 4,383,427, Cl. 72-71.000.

Babcock, Gary D.: *See*—
Hutchings, Thomas J.; Grant, David C., Jr.; and Babcock, Gary D., 4,383,763, Cl. 356-350.000.

Baer, Karl; Reiss, Wolfgang; Schroeder, Wolfgang; and Voges, Dieter, to BASF Aktiengesellschaft. Preparation of catalysts and their use for the hydrogenation of acetylene-alcohols. 4,384,147, Cl. 568-861.000.

Baker, Clinton F. Soil sampling tool. 4,383,583, Cl. 175-20.000.

Baker, Daniel H.: *See*—
Larsen, Einar V.; Baker, Daniel H.; and Bowler, Colin E. J., 4,384,246, Cl. 322-58.000.

Baker International Corporation: *See*—
Baker, John R., 4,383,578, Cl. 166-373.000.

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Baker, Richard L., to Applied Polymer Technology, Incorporated. Thermoplastic adhesive. 4,384,083, Cl. 525-420.500.

Baker, William T., to Multi-Products Company. Adjustable choke. 4,383,552, Cl. 138-46.000.

Baldwin Piano & Organ Company: *See*—
Conklin, Harold A., Jr., 4,383,465, Cl. 84-199.000.

Ballet, Frederick L.: *See*—
Beckman, Marshall H.; and Ballet, Frederick L., 4,383,336, Cl. 2-158.000.

Balz, Gunther W., to Roto-Finish Company, Inc. Automatic finishing chip process. 4,383,967, Cl. 264-310.000.

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Barber, James C., to James C. Barber and Associates, Inc. Production of fluid fertilizer from phosphorus furnace waste stream. 4,383,847, Cl. 71-34.000.

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Spanjersberg, Albertus C.; Mink, Hans G.; and Barwegen, Johannes H. M., 4,383,644, Cl. 239-3.000.

BASF Aktiengesellschaft: *See*—
Baer, Karl; Reiss, Wolfgang; Schroeder, Wolfgang; and Voges, Dieter, 4,384,147, Cl. 568-861.000.
Degen, Hans-Juergen; Guender, Wolf; Frey, Guenter; Streit, Werner; Fikentscher, Rolf; and Wulz, Klaus, 4,383,834, Cl. 8-551.000.
Hartmann, Horst; Hochstein, Waldhelm; Kaibel, Gerd; and Mueller, Franz-Josef, 4,383,894, Cl. 203-70.000.
Kaibel, Gerd; Hartmann, Horst; Hochstein, Waldhelm; and Mueller, Franz-Josef, 4,383,893, Cl. 203-35.000.
Merger, Franz; and Fouquet, Gerd, 4,384,120, Cl. 546-251.000.
Reiter, Udo; Lehmann, Helmut; Disteldorf, Walter; and Schenck, Hans-Uwe, 4,384,061, Cl. 524-104.000.
Schaefer, Peter; and Mangold, Dietrich, 4,384,141, Cl. 564-256.000.
Wendel, Kurt; and Hirsch, Gunter, 4,384,069, Cl. 524-521.000.

BASF Wyandotte Corporation: *See*—
Dexheimer, Edward M., 4,384,104, Cl. 528-103.000.
Iyengar, Doreswamy R., 4,383,865, Cl. 106-308.00N.
McBrayer, Robert L.; Demou, John G.; Kan, Peter T.; and Volz, William E., 4,384,052, Cl. 521-162.000.

Bashin, Saul: *See*—
Rauschenbach, Hans S.; Bashin, Saul; and Smith, Barry N., 4,384,163, Cl. 136-245.000.

Bathgate, Raymond J., to FBC Limited. Chemical blowing agent. 4,384,048, Cl. 521-89.000.

Batorewicz, Wadim, to Uniroyal, Inc. Hydrolytically stable diphosphites useful as antioxidants. 4,384,062, Cl. 524-128.000.

Bauer, Friedrich, to M.A.N. Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft. Piston for internal combustion engines. 4,383,509, Cl. 123-193.00P.

Bauer, Karl; Dammann, Peter; Kubler, Hermann; and Lorenz, Hellmut, to Barmag Barmer Maschinenfabrik AG. Yarn false twisting apparatus and method. 4,383,405, Cl. 57-340.000.

Bauer, Klaus: *See*—
Handte, Reinhard; Bauer, Klaus; and Bieringer, Hermann, 4,383,850, Cl. 71-88.000.

Bawarshi, Rima: *See*—
Hussain, Anwar A.; Hirai, Shinichiro; and Bawarshi, Rima, 4,383,993, Cl. 424-239.000.

Bayer Aktiengesellschaft: *See*—
Berendes, Otto; and Siegle, Peter, 4,384,145, Cl. 568-391.000.
Drope, Eckard; Jansky, Karl P.; Pross, Wilhelm; and Breuer, Wolfram, deceased, 4,384,283, Cl. 340-632.000.
Elfert, Klaus, 4,383,923, Cl. 210-654.000.
Frank, Walter; Bendszus, Otto; Traenckner, Hans-Joachim; and Freier, Hans-Joachim, 4,383,902, Cl. 204-159.150.
Hocker, Jurgen; Wieder, Wolfgang; Merten, Rudolf; and Witte, Josef, 4,384,090, Cl. 526-169.200.
Jautelat, Manfred; Arlt, Dieter; Lantzsch, Reinhard; Fuchs, Rainer; Riebel, Hans-Jochem; Schroder, Rolf; and Harnisch, Horst, 4,384,114, Cl. 542-441.000.
Korte, Siegfried; Neukam, Theo; and Suling, Carlhans, 4,384,091, Cl. 526-222.000.
Lobach, Wilfried; Kolb, Gunter; Lehmann, Wolfgang; Cramm, Gunther; Muller, Friedhelm; and Muszik, Janos, 4,384,110, Cl. 528-323.000.
Maurer, Fritz; Riebel, Hans-Jochem; Priesnitz, Uwe; and Klauke, Erich, 4,383,949, Cl. 260-465.00G.
Preuss, Reinhard; Grutze, Joachim; Beck, Ulrich; Pantke, Hellmuth; and Vogel, Karl, 4,383,835, Cl. 8-602.000.
Rasshofer, Werner; Grogler, Gerhard; and Kopp, Richard, 4,384,102, Cl. 528-73.000.
Schmidt, Adolf; Kolb, Gunter; and Clarenz, Werner, 4,384,056, Cl. 523-221.000.
Wingler, Frank; Leusner, Bernd; Schwabe, Peter; and Geyer, Otto-Christian, 4,384,097, Cl. 526-328.500.
Zecher, Wilfried; and Merten, Rudolf, 4,384,122, Cl. 548-307.000.

BBC Brown, Boveri & Company, Limited: *See*—
Eisele, Dieter, 4,383,355, Cl. 29-588.000.
Kovacs, Zoltan; and Schuler, Roland, 4,384,101, Cl. 528-73.000.
Zerlik, Willibald, 4,384,222, Cl. 310-61.000.

Beaman, Norman V.; and Sellers, Gary B., to Robertshaw Controls Company. Microprocessor based capacitance level detection system. 4,383,444, Cl. 73-304.00C.

Beard, Harold J. Waste water clarifier. 4,383,922, Cl. 210-521.000.

Beard, Hoyt S.; Williard, Daniel G.; and Woempner, Marvin G., to R. J. Reynolds Tobacco Company. Apparatus for moisture and heat conditioning compacted tobacco mass. 4,383,538, Cl. 131-300.000.

Beausoleil, Gabriel. Heating stove. 4,383,518, Cl. 126-79.000.

Beck, Bernhard: *See*—
Fratzer, Gerhard; and Beck, Bernhard, 4,383,974, Cl. 422-176.000.
Fratzer, Gerhard; and Beck, Bernhard, 4,383,975, Cl. 422-176.000.

Beck, Ulrich: *See*—
Preuss, Reinhard; Grutze, Joachim; Beck, Ulrich; Pantke, Hellmuth; and Vogel, Karl, 4,383,835, Cl. 8-602.000.

Becker, Karl-Heinz; Milla, Peter; Hergt, Peter; and Hellmann, Heinz-Dieter, to Klein-Schanzlin & Becker Aktiengesellschaft. Centrifugal pump with open double volute casing. 4,383,800, Cl. 415-219.00C.

Becker, Philip S., to Valex, Inc. Automatic drain system for compressed air systems and the like. 4,383,545, Cl. 137-204.000.

Becker-Prunte GmbH: *See*—
Niemoller, Gerhard; Stromberg, Wilfried; and Schneider, Friedheim, 4,383,603, Cl. 198-731.000.

Beckman, Marshall H.; and Ballet, Frederick L. Hand covering. 4,383,336, Cl. 2-158.000.

Beckworth, Alden E.: *See*—
Hutson, Thomas, Jr.; Makovec, Donald J.; and Beckworth, Alden E., 4,383,977, Cl. 422-235.000.

Bedrosian, Robert G.: *See*—
Lordahl, Var E.; and Bedrosian, Robert G., 4,383,607, Cl. 206-45.340.

Beecham Group Limited: *See*—
Coe, Paul L.; Jones, Albert S.; Noble, Stewart A.; and Walker, Richard T., 4,383,990, Cl. 424-180.000.

Beerbaum, Ronald H., to Britsol Babcock Inc. Wide band modem for high speed data transmission. 4,384,356, Cl. 375-36.000.

Beggs, Stanley L.; Riel, Frank J.; and Lawson, D. W. R., to Rohr Industries, Inc. Honeycomb noise attenuating structures. 4,384,020, Cl. 428-138.000.

Beitner, Shlomo, to Bipol Ltd. Peltier refrigeration construction. 4,383,414, Cl. 62-3.000.

Bell Telephone Laboratories, Incorporated: *See*—
Ackland, Bryan D.; Burr, David J.; and Weste, Neil H. E., 4,384,273, Cl. 382-34.000.
Ahuja, Sudhir R., 4,384,323, Cl. 364-200.000.
Benjamin, O'Connell J., 4,384,278, Cl. 340-347.0AD.
Brown, David B., 4,384,175, Cl. 179-175.20C.
Henning, Hansjuergen H., 4,384,364, Cl. 455-60.000.
Leland, Kenneth W., 4,384,362, Cl. 455-33.000.
Lo, Christopher C., 4,384,266, Cl. 337-244.000.
Maydan, Dan; and Wang, David N., 4,383,885, Cl. 156-643.000.
Trividis, Yannis, 4,384,217, Cl. 307-297.000.
Werner, Jean-Jacques, 4,384,355, Cl. 375-14.000.

Bellhouse, Brian J.; and Bellhouse, Francis H. Apparatus for heat or mass transfer. 4,383,921, Cl. 210-321.100.

Bellhouse, Francis H.: *See*—
Bellhouse, Brian J.; and Bellhouse, Francis H., 4,383,921, Cl. 210-321.100.

Bellino, Joseph P.: *See*—
LeDuc, Kenneth C.; and Bellino, Joseph P., 4,384,030, Cl. 429-174.000.

Bellows, Kenneth O., to Air Preheater Company, Inc., The. Fire detection cleaning arrangement. 4,383,572, Cl. 165-5.000.

Beltz, Klaus; Frankenfeld, Klaus; Lehmann, Rainer; and Zintl, Inge, to Chemische Fabrik Budenheim. Process of obtaining uranium and uranium compounds from phosphoric acid. 4,383,978, Cl. 423-9.000.

Ben-Dror, Jonathan: *See*—
Vardi, Isaih; Bourne, Joseph; Ben-Dror, Jonathan; and Kimchi, Yigal, 4,383,424, Cl. 62-476.000.

Bendix Corporation, The: *See*—
Imbeninato, Paul A.; and Wolff, Richard H., 4,383,452, Cl. 74-5.470.
Kolter, Roland K., 4,384,252, Cl. 324-239.000.
Woodruff, Frank; Ferguson, John H., Jr.; and Hoffman, John R., 4,383,647, Cl. 239-265.190.

Bendszus, Otto: *See*—
Frank, Walter; Bendszus, Otto; Traenckner, Hans-Joachim; and Freier, Hans-Joachim, 4,383,902, Cl. 204-159.150.

Benjamin, O'Connell J., to Bell Telephone Laboratories, Incorporated. One-bit codec with slope overload correction. 4,384,278, Cl. 340-347.0AD.

Bennett, William S., to Singer Company, The. Methods and apparatus for blending computer image generated features. 4,384,338, Cl. 364-522.000.

Benz, Roland: *See*—
Ahrendt, Gerhard; Benz, Roland; Engenhart, Reinhold; and Schmidt, Viktor, 4,383,655, Cl. 242-47.000.

Benzinger, William D.; and Robinson, Donald N., to Pennwalt Corporation. Porous vinylidene fluoride polymer membrane and process for its preparation. 4,384,047, Cl. 521-64.000.

Berendes, Otto; and Siegle, Peter, to Bayer Aktiengesellschaft. Process for the preparation of pinacolone. 4,384,145, Cl. 568-391.000.

Bergougnan - Benelux: *See*—
Pringiers, Pierre; and De Meersman, Clement, 4,383,450, Cl. 73-790.000.

Bergwerksverband GmbH: *See*—
Handrick, Kurt; Kolling, Georg; and Mensch, Fritz, 4,384,152, Cl. 585-320.000.

Berkers, Wilhelmus A. J. Chord performing apparatus for an electronic organ. 4,383,461, Cl. 84-1.030.

Bermudez, Mauricio; Klimpel, Richard R.; and Sands, Steven D., to Dow Chemical Company, The. Grinding aids for the grinding of cereal grains. 4,384,010, Cl. 426-618.000.

Bernklau, James W.: *See*—
Lynch, M. Dee; and Bernklau, James W., 4,383,551, Cl. 137-593.000.

Bertero, Anthony J. Device to determine hair cutting angle. 4,383,374, Cl. 33-373.000.

Bertin, Charly: *See*—
Laprade, Gerard; Marouby, Jean-Pierre; and Bertin, Charly, 4,383,673, Cl. 249-142.000.

Bertocchio, Rene; Foulletier, Louis; and Lantz, Andre, to Produits Chimiques Ugine Kuhlmann. Fluorinated sulphobetaines and compositions containing the same. 4,383,929, Cl. 252-8.050.

Bertolacini, Ralph J.: *See*—
Gutberlet, L. Charles; Bertolacini, Ralph J.; Kozinski, Allen A.; and Hooper, Craig L., 4,383,916, Cl. 208-189.000.

Bertrams AG: *See*—
Kuhnlein, Hans; Kung, Hans R.; and Molnar, Georg, 4,383,887, Cl. 159-13.00A.

Beurer, Frederick C.: *See*—
Zane, Anthony J.; and Beurer, Frederick C., 4,383,372, Cl. 33-276.000.

Beyl, Jean J. A., to Ste Look. Retractable ski brake. 4,383,699, Cl. 280-605.000.

Beyl, Jean J. A., to Ste Look. Ski brake. 4,383,700, Cl. 280-605.000.

Bezzerides, Paul A., to Vradenburg, Dave, a part interest. Pollinating machine. 4,383,389, Cl. 47-1.410.

Bhagat, Pramode K.: *See*—
United States of America, National Aeronautics and Space Administration; Bhagat, Pramode K.; and Wu, Vic C., 4,383,533, Cl. 128-660.000.

Bieringer, Hermann: *See*—
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Bipol Ltd.: *See*—
Beitner, Shlomo, 4,383,414, Cl. 62-3.000.

Bishop, Leonard E. Training aid for basketball players. 4,383,685, Cl. 273-1.50A.

Bixler, Kenneth D., to Diamond International Corporation. Carton lock. 4,383,638, Cl. 229-45.0EC.

Bjarno, Ole-Christian, to Slagteriernes Forskningsinstitut. Process for detection of particular quality properties in individual articles of food. 4,384,206, Cl. 250-339.000.

Bjorkqvist, Lars-Goran: *See*—
Rastas, Jussi K.; Bjorkqvist, Lars-Goran; Gisler, Raija-Leena; and Liukkonen, Simo S., 4,383,979, Cl. 423-36.000.

Black Clawson Company, The: *See*—
Chupka, David E.; and Seifert, Peter, 4,383,918, Cl. 209-234.000.

Blair, Everett G., to Wallace Murray Corporation. Fluid shear coupling apparatus. 4,383,597, Cl. 192-58.00B.

Blaisdell, Ronald G.; Hough, Harold L.; and Kowalski, C. Edward, to GTE Products Corporation. Projection lighting unit with rear loading lamp capsule member. 4,384,319, Cl. 362-296.000.

Blaise, Jean; and Herisson, Jean-Louis, to Produits Chimiques Ugine Kuhlmann. Process for the manufacture of polytetrafluoroethylene. 4,384,092, Cl. 526-225.000.

Bleier, Alois, to Kraftwerk Union Aktiengesellschaft. Method for removing radioactive carbon produced in nuclear power plants. 4,383,969, Cl. 376-313.000.

Blendax-Werke R.Schneider GmbH & Co.: *See*—
Butler, David V.; Kidd, Patrick D.; and Orlowski, Jan A., 4,383,826, Cl. 433-228.000.

Bleyer, Rainer: *See*—
Freytag, Oskar; Bleyer, Rainer; Geyenot, Volker; Fleischer, Gerd; and Michael, Jugen, 4,383,771, Cl. 384-121.000.

Bloom Engineering (Europa) GmbH: *See*—
Schatschneider, Peter, 4,383,822, Cl. 432-247.000.

Bloothoofd, William; and Hughes, Norman E., to Hercules Incorporated. Method and apparatus for producing a capped printing plate. 4,383,759, Cl. 355-85.000.

Boberski, William G.: *See*—
Nowakowski, Peter M.; Boberski, William G.; and Seiner, Jerome A., 4,383,866, Cl. 106-308.00B.

Bobrowski, Louis G., to Stanley Works, The. Baseboard heat reflector. 4,383,575, Cl. 165-55.000.

Bochinski, Rolf; Eimer, Klaus; Schildmann, Hans W.; and Schmitz, Gunther, to Taprogge Gesellschaft mbH. Cleaning member for cleaning the interior of heat exchanger tubes. 4,383,346, Cl. 15-104.06R.

Boden, Richard M., to International Flavors & Fragrances Inc. Use in flavors of Prins reaction products of diisobutylene. 4,384,007, Cl. 426-534.000.

Boeing Company, The: *See*—
La Conte, Richard J., 4,383,347, Cl. 16-360.000.
La Conte, Richard J., 4,383,392, Cl. 49-205.000.

Bogath, Walter J., to C. Reichert Optische Werke, AG. Microscope objective. 4,383,739, Cl. 350-414.000.

Bogel, George F., to Westinghouse Electric Corp. Automatic transfer control device. 4,384,213, Cl. 307-64.000.

Boger, Donald C. Method and apparatus for aiding in cervical spine radiographic production. 4,383,524, Cl. 128-75.000.

Bogese, Charles E.; and Bogese, Stephen B., II, to Virginia Patent Development Corp. Cable assembly having shielded conductor. 4,383,725, Cl. 339-99.00R.

Bogese, Stephen B., II: *See*—
Bogese, Charles E.; and Bogese, Stephen B., II, 4,383,725, Cl. 339-99.00R.

Boismard, Pierre: *See*—
Brachet, Roland; and Boismard, Pierre, 4,383,742, Cl. 352-100.000.

Bolesky, Richard C.: *See*—
Volz, Robert G.; Vanzile, Richard R.; and Bolesky, Richard C., 4,383,337, Cl. 3-1.910.

Bollon, Anthony W.; and Clark, Christopher J., to Thorn EMI Limited. Linear filament assembly with refractory insulating support rod for halogen lamp. 4,384,235, Cl. 313-276.000.

Bolt Technology Corporation: *See*—
Chelminski, Stephen V., 4,383,582, Cl. 173-131.000.

Bondinell, William E.; Lafferty, John J.; and Zirkle, Charles L., to Smithkline Beckman Corporation. Inhibition of GABA uptake by

N-substituted azaheterocyclic carboxylic acids and their esters. 4,383,999, Cl. 424-266.000.

Boodea, Wayne R., to Microdot Inc. Electrical switch assembly. 4,384,181, Cl. 200-61.760.

Borchers, Heinz: *See*—
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Borden, Inc.: *See*—
Ho, Guan-Huei; and Liao, Chiang-Chang, 4,384,045, Cl. 435-176.000.

Borders, Donald B.: *See*—
Martin, John H. E. J.; Labeda, David P.; Korshalla, Joseph D.; Borders, Donald B.; and Testa, Raymond T., 4,384,043, Cl. 435-71.000.

Bordovsky, Robert, to Rediffusion Simulation Incorporated. Infinity image visual display system. 4,383,740, Cl. 350-504.000.

Borrel, Christian: *See*—
Lavalerie, Claude; and Borrel, Christian, 4,383,500, Cl. 122-491.000.

Borrod, Guy: *See*—
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Boruschewitz, Manfred: *See*—
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Borzone, Rocco R.: *See*—
Asnis, Stanley E.; and Borzone, Rocco R., 4,383,527, Cl. 128-92.0EB.

Boschung, Marcel; and Zehnder, Walter, to Boschung Mecatronic AG. Apparatus for determining the freezing point of a liquid on or from a road surface. 4,383,770, Cl. 374-25.000.

Boschung Mecatronic AG: *See*—
Boschung, Marcel; and Zehnder, Walter, 4,383,770, Cl. 374-25.000.

Boshears, Donald L., to Pocket-Pak, Inc. Cassette retention pocket. 4,383,610, Cl. 206-387.000.

Bottum, Edward W. Heating system and method. 4,383,419, Cl. 62-238.600.

Boucher, John H. Method of treating horses to inhibit or reduce increases in crenated red blood cells during exercise. 4,383,997, Cl. 424-253.000.

Bouchta, Rabah: *See*—
Saadi, Moussa; Bouchta, Rabah; Cha, Chang Y.; Sdiqui, Mohamed; and Barodi, Bachir, 4,383,912, Cl. 208-11.00R.

Bounds, Edward G. Foundation-based solar heating system. 4,383,521, Cl. 126-430.000.

Bourne, Joseph: *See*—
Vardi, Isaih; Bourne, Joseph; Ben-Dror, Jonathan; and Kimchi, Yigal, 4,383,424, Cl. 62-476.000.

Bouverot, Noel; Medard, Paul; and Viale, Alain, to Rhone-Poulenc Industries. Pasty organopolysiloxane compositions thermosetting into elastomers. 4,384,068, Cl. 524-493.000.

Bowler, Colin E. J.: *See*—
Larsen, Einar V.; Baker, Daniel H.; and Bowler, Colin E. J., 4,384,246, Cl. 322-58.000.

BP Chemicals Limited: *See*—
Johnstone, Alexander, 4,383,939, Cl. 252-429.00B.

Br. Perssons Cementvarufabrik AB: *See*—
Persson, Bengt, 4,383,671, Cl. 249-66.00R.

Braceland, Richard. Jig for assembling table tops. 4,383,680, Cl. 269-43.000.

Brachet, Roland; and Boismard, Pierre. Method and apparatus for creating the illusion of moving images. 4,383,742, Cl. 352-100.000.

Bradley, John J.: *See*—
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Braley, Gordon K. Treatment of spillages of hazardous chemicals. 4,383,868, Cl. 134-7.000.

Brandenstein, Manfred: *See*—
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; Kunkel, Heinrich; Dobhan, Herbert; Horling, Peter; and Klupfel, Norbert, 4,383,670, Cl. 249-60.000.

Brandly, Ernest B. Motor. 4,384,221, Cl. 310-24.000.

Brandt, Inc.: *See*—
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Jones, Alan P., 4,384,194, Cl. 377-8.000.

Brassfield, Henry C.: *See*—
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Braun, Alfred J., Jr., to Solar Heating & Spas, Inc. Retrofit whirlpool bath having flow directing recesses. 4,383,340, Cl. 4-541.000.

Bregnedal, Peter; and Buus, Jorn L. M., to Kefalas A/S. 2-Chloroethyl urea derivatives. 4,384,140, Cl. 564-56.000.

Breit, Henry F., to Texas Instruments Incorporated. Spark plug with heat conducting sleeve for center electrode. 4,384,234, Cl. 313-142.000.

Brenke, Manfred; Ihlefeldt, Jurgen; Kopineck, Hermann-Josef; and Tappe, Wilhelm, to Hoesch Werke Aktiengesellschaft. Arrangement for determining the width of rolling mill products. 4,384,303, Cl. 358-107.000.

Brennan, John F. Electromagnetic devices for actuating piano keys. 4,383,464, Cl. 84-21.000.

Breslin, Michael D.: *See*—
Hyde, James A.; Breslin, Michael D.; Cosper, David R.; and Kaplan, Roy I., 4,383,889, Cl. 162-26.000.

Breuer, Gisela, Axel W. Breuer, Ingo R. Breuer, executors: *See*—
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Breuer, Wolfram, deceased: *See*—
Drope, Eckard; Jansky, Karl P.; Pross, Wilhelm; and Breuer, Wolfram, deceased, 4,384,283, Cl. 340-632.000.

Bricard, Alain; Chabanne, Jacques; and Duret, Bernard, to Commissariat a l'Energie Atomique. Process of accumulation and restitution of heat. 4,383,576, Cl. 165-104.170.

Briefer, Dennis K.; Flitterman, Michael; and Silverman, Richard, to Granus Corporation. Electromagnetic planar diaphragm transducer. 4,384,173, Cl. 179-115.5PV.

Britsol Babcock Inc.: *See*—
Beerbaum, Ronald H., 4,384,356, Cl. 375-36.000.

Britten-Kelly, Michael R.; Shuster, Edward J.; and Hansen, Odd, to Fritzsche Dodge & Olcott Inc. Acetaldehyde ethyl isoeugenyl acetal perfume compositions. 4,383,943, Cl. 252-522.00R.

Brother Kogyo Kabushiki Kaisha: *See*—
Sugiyama, Akira; and Hirota, Kunio, 4,383,489, Cl. 112-103.000.

Brouer, Robert L.: *See*—
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Browatzki, Kurt: *See*—
Koepke, Gunther; Frenken, Hans; Bussmann, Heinrich; and Browatzki, Kurt, 4,384,015, Cl. 427-402.000.

Brown, David B., to Bell Telephone Laboratories, Incorporated. Tone detection method and arrangement for observing and classifying repetitive status signals. 4,384,175, Cl. 179-175.20C.

Brown, Robert E., to United States of America, Navy. Oscillator/-driver circuit for fluxgate magnetometer. 4,384,254, Cl. 324-253.000.

Brownstein, Scott A.: *See*—
Greenwald, Roger J.; and Brownstein, Scott A., 4,384,238, Cl. 315-151.000.

Bruce, Kenneth E.; Lombardo, Ralph M., Jr.; Tarbox, Bruce H.; and Conway, John W., to Honeywell Information Systems Inc. Asynchronous multi-communication bus sequence. 4,384,322, Cl. 364-200.000.

Bruce, Kenneth E.: *See*—
Conway, John W.; Bradley, John J.; Bruce, Kenneth E.; Lombardo, Ralph M., Jr.; and Tarbox, Bruce H., 4,384,327, Cl. 364-200.000.

Brunbeck, Richard T.: *See*—
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Brunetti, Massimo: *See*—
Fraefel, Wolfgang; Lichti, Heinz F.; and Brunetti, Massimo, 4,383,832, Cl. 8-94.110.

Bruno, John. Hypodermic needle and method of making needles. 4,383,530, Cl. 604-274.000.

Brunswick Corporation: *See*—
Griffiths, John M., 4,383,503, Cl. 123-73.0PP.

Bubik, Leslie, to Vulcan Equipment Company, Ltd. Towing vehicle, boom, winching and lifting apparatus. 4,383,807, Cl. 414-563.000.

Buchholz, Arnold R.: *See*—
De Meyer, Roy W.; Harder, Frederick H.; Buchholz, Arnold R.; Uecker, Richard P.; and Kressin, John A., 4,383,540, Cl. 133-3.00H.

Buckley, Alan: *See*—
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Budzich, Tadeusz. Lubrication and sealing of a free floating piston of hydraulically driven gas compressor. 4,383,804, Cl. 417-267.000.

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Honda, Harushisa; and Toyono, Tsutomu, 4,383,758, Cl. 355-68.000.
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Iwashita, Tomonori; and Fukahori, Hidehiko, 4,383,750, Cl. 354-271.000.
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Carl Zeiss-Stiftung: *See*—
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Sisti, Giorgio; Galli, Mario; and Trestianu, Sorin, 4,383,839, Cl. 55-67.000.
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Divers, Raymond T.; Kassouf, Thomas L.; and Circelli, Joan, 4,383,726, Cl. 339-198.00R.
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Casey, Daniel T., to AMP Incorporated. Method for terminating flat cable. 4,383,364, Cl. 29-863.000.
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Caswell, Donald; and Stout, David J., to Wayn-Tex Inc. Secondary carpet backing fabric. 4,384,018, Cl. 428-95.000.
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Kuder, James E., 4,383,899, Cl. 204-59.00R.
Shepherd, James P., 4,383,904, Cl. 204-162.00R.
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Beltz, Klaus; Frankenfeld, Klaus; Lehmann, Rainer; and Zintl, Inge, 4,383,978, Cl. 423-9.000.
Cheng, Paul J., to Phillips Petroleum Company. Process and apparatus for making carbon black. 4,383,973, Cl. 422-151.000.
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Christensen, Burton G.; Ratcliffe, Ronald W.; and Salzmann, Thomas N., to Merck & Co., Inc. Process for the preparation of 1-carbapenems and intermediates via silyl-substituted dithioacetals. 4,383,946, Cl. 260-245.20T.
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Lohse, Friedrich; Trachsler, Dieter; and Moser, Roland, 4,384,084, Cl. 525-504.000.
Meyer, Hans R., 4,384,121, Cl. 548-217.000.
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Nosler, John C., 4,384,195, Cl. 377-53.000.

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Siegel, Leon S.; and Holman, Charles O., 4,383,445, Cl. 73-304.00C.
Wincze, Steven P., 4,383,573, Cl. 165-7.000.

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Bricard, Alain; Chabanne, Jacques; and Duret, Bernard, 4,383,576, Cl. 165-104.170.
Le Du, Antoine; Langlais, Frantz; Michaud, Christian; and Postel, Michel, 4,383,879, Cl. 156-307.700.

Comparetto, John E. Device for opening shellfish. 4,383,348, Cl. 17-74.000.

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Drope, Eckard; Jansky, Karl P.; Pross, Wilhelm; and Breuer, Wolfram, deceased, 4,384,283, Cl. 340-632.000.

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Conway, John W.; Bradley, John J.; Bruce, Kenneth E.; Lombardo, Ralph M., Jr.; and Tarbox, Bruce H., to Honeywell Information Systems Inc. Intersystem cycle control logic. 4,384,327, Cl. 364-200.000.

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CPG Products Corp.: *See*—
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Crafton, Thomas W. Hot air dryer room deodorizer. 4,383,377, Cl. 34-60.000.

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Crawford, Thomas M.; Reynolds, Alastair S.; and Young, Ivan R., to Hewlett-Packard Limited. Noise margin measurement and error probability prediction. 4,384,354, Cl. 375-10.000.

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Creech, Clyde W. Apparatus and method for cutting holes in steel plates. 4,383,870, Cl. 148-9.00R.

Crick, Robert G.; Dewey, Michael J.; and Jamison, Larry P., to Integrated Switching Supplies, Inc. Non-interrupting power supplies for loads of less than 500 watts. 4,384,214, Cl. 307-66.000.

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Crook, Richard W.; Coghill, Ian; and James, David R., to Marconi Company Limited, The. Stabilized antenna arrangement. 4,384,294, Cl. 343-709.000.

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Cross Manufacturing, Inc.: *See*—
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Crossman, Richard L.: *See*—
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Crouse, Dennis L. Holding device for the firing of ceramics and the like. 4,383,825, Cl. 432-258.000.

Crum, George T.; Guster, Charles D., Jr.; and McClain, Myron M., to Goodyear Tire & Rubber Company, The. Pneumatic tractor tire. 4,383,567, Cl. 152-209.00B.

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Dahan, Jacques J. Convection radiator. 4,384,189, Cl. 219-364.000.

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Daikin Kogyo Co., Ltd.: *See*—
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Dainippon Screen Seizo Kabushiki Kaisha: *See*—
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Daiwa Can Company, Limited: *See*—
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Dammann, Peter: *See*—
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Dana Corporation: *See*—
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Darby, John: *See*—
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Darrow, John O. G., to American Standard Inc. Vital vehicle movement detector. 4,384,250, Cl. 324-161.000.

Data Beta Limited: *See*—
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Data Card Corporation: *See*—
McCumber, Roger D.; and Gerlach, LeRoy E., 4,384,196, Cl. 235-375.000.

Data Packaging Corporation: *See*—
Yonkers, Edward H., 4,383,774, Cl. 400-195.000.

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Trammell, Kenneth L.; and Van Horne, Arthur C., 4,383,775, Cl. 400-208.000.

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Davenport, Donald E., to MB Associates. Apparatus and method for enhancing electrical conductivity of conductive composites and products thereof. 4,383,942, Cl. 252-512.000.

Davis, Richard S.: *See*—
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Fox, Gerard J., 4,383,384, Cl. 42-72.000.

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deBres, Johannes G. C. M.: *See*—
Huisman, Hendrikus F.; and deBres, Johannes G. C. M., 4,384,012, Cl. 427-130.000.

deBuda, Rudi; and Jagger, Charles E., to Canadian Patens & Development Limited. Self-synchronization circuit for a FFSK or MSK demodulator. 4,384,357, Cl. 375-81.000.

Deem, Paul S.; and Grobert, Paul H., to Magnavox Government and Industrial Electronics Company. Apparatus and method for providing pointing information. 4,384,293, Cl. 343-113.00R.

Deere & Company: *See*—
Kerr, Russell H., 4,383,677, Cl. 266-87.000.
Ragon, Danny L., 4,383,718, Cl. 305-53.000.

Defaut, Bernard: *See*—
Simon, Jacques; and Defaut, Bernard, 4,383,731, Cl. 350-96.180.

Degen, Hans-Juergen; Guender, Wolf; Frey, Guenter; Streit, Werner; Fikentscher, Rolf; and Wulz, Klaus, to BASF Aktiengesellschaft. Coloring of paper. 4,383,834, Cl. 8-551.000.

DeGraff, Richard R., to UOP Inc. Catalytic condensation process with propane product stream. 4,384,157, Cl. 585-514.000.

Degussa Aktiengesellschaft: *See*—
Fratzer, Gerhard; and Beck, Bernhard, 4,383,974, Cl. 422-176.000.
Fratzer, Gerhard; and Beck, Bernhard, 4,383,975, Cl. 422-176.000.
Schwarz, Rudolf; Kleinschmit, Peter; Liedtke, Christa; and Wolff, Siegfried, 4,384,132, Cl. 556-427.000.

Dehm, David C., to Atlantic Richfield Company. Low temperature polymerization process. 4,384,089, Cl. 526-159.000.

Delbarre, Bernard; and Mavoungou-Gomes, Louis. [4,5] 4H-Benzo [1,2-b] cyclohepta furan derivatives and application thereof as antifibrillating agents. 4,383,995, Cl. 424-248.540.

Delcoigne, Adrien; and Lanneau, Jacques. Process and mechanism for the elimination of excess water from a mixture of plaster and water, and the product obtained. 4,383,960, Cl. 264-87.000.

Delorean Research Limited Partnership: *See*—
Swannell, Leslie E. J., 4,383,818, Cl. 425-546.000.

Delorme, Guy. Straw spreader. 4,383,536, Cl. 130-27.00R.

Dembowski, Peter V.; and Schilke, Peter W., to General Electric Company. Method of creating a controlled interior surface configuration of passages within a substrate. 4,383,854, Cl. 419-1.000.

De Meersman, Clement: *See*—
Pringiers, Pierre; and De Meersman, Clement, 4,383,450, Cl. 73-790.000.

De Meyer, Roy W.; Harder, Frederick H.; Buchholz, Arnold R.; Uecker, Richard P.; and Kressin, John A., to Brandt, Inc. Feeding mechanism for dual coin sorters operating in parallel. 4,383,540, Cl. 133-3.00H.

Demou, John G.: *See*—
McBrayer, Robert L.; Demou, John G.; Kan, Peter T.; and Volz, William E., 4,384,052, Cl. 521-162.000.

Denmat, David A. Lens protection case. 4,383,565, Cl. 150-52.00J.

Dennison, Everett G., Jr. Device for indicating a freezing temperature in a selected location. 4,384,282, Cl. 340-580.000.

Dennison Manufacturing Company: *See*—
Geurtsen, Friedrich H. H.; Kebbel, Waldemar S.; and Meyer, Manfred, 4,383,880, Cl. 156-361.000.

Denver Spring Service & Mfg. Co., Inc.: *See*—
King, Louis J., 4,383,791, Cl. 414-542.000.

de Reinach Hirtzbach, Francois; and Borrod, Guy, to Rhone-Poulenc Agrochimie. 2,3-Dihydro-4-pyrone derivatives, their preparation the herbicidal compositions in which they are present and their use for selectively destroying weeds in crops. 4,383,849, Cl. 71-88.000.

DeSoto, Inc.: *See*—
Gaske, Joseph E.; Plaisance, Thomas H.; and Pennanen, Hannu K., 4,384,070, Cl. 524-597.000.
Noren, Gerry K., 4,384,013, Cl. 427-255.400.

Dessau, Ralph M., to Mobil Oil Corporation. Diels-Alder Cyclization over low acidity large-pore zeolites. 4,384,153, Cl. 585-366.000.

Deter, Christhard; Hiller, Klaus; Laack, Ulrich; Leuschner, Reiner; and Wunderlich, Jorg. Device for positioning an object relative to a carrier means. 4,383,760, Cl. 356-150.000.

Detexomat Machinery Limited: *See*—
Hodges, Michael J., 4,383,490, Cl. 112-121.150.
Hodges, Michael J., 4,383,491, Cl. 112-262.200.

Devchoadhury, Rathindra N., to NCR Corporation. Memory security circuit using the simultaneous occurance of two signals to enable the memory. 4,384,326, Cl. 364-200.000.

de Vos, Hendrik A. J.; and Labouliere, Elzear R., to GTE Products Corporation. Outdoor luminaire with readily separable, two-part housing. 4,384,316, Cl. 362-147.000.

Dewey, Michael J.: *See*—
Crick, Robert G.; Dewey, Michael J.; and Jamison, Larry P., 4,384,214, Cl. 307-66.000.

Dexheimer, Edward M., to BASF Wyandotte Corporation. Fiber lubricants formed by polyoxyalkylation of epoxy resin derivatives. 4,384,104, Cl. 528-103.000.

Dexter, Martin; and Winter, Roland A. E., to Ciba-Geigy Corporation. 2-[2-Hydroxy-3,5-di-tert-octylphenyl]-2H-benzotriazole in stabilized photographic compositions. 4,383,863, Cl. 106-125.000.

Dial Industries, Inc.: *See*—
Macho, Jan M.; and Oxford, Richard O., 4,383,488, Cl. 108-129.000.

Diamond International Corporation: *See*—
Bixler, Kenneth D., 4,383,638, Cl. 229-45.0EC.

Dias, J. Fleming, to Hewlett-Packard Company. Acousto-electric transducer. 4,384,228, Cl. 310-313.00D.

Dickerson, Richard C.: *See*—
Muller, Richard S.; and Dickerson, Richard C., 4,383,920, Cl. 210-87.000.

Dickhudt, Eugene A., to Medtronic, Inc. Epidural lead advancer. 4,383,532, Cl. 128-419.00P.

Diesel Kiki Co., Ltd.: *See*—
Sumikawa, Seiji; and Utsugi, Kazuo, 4,383,642, Cl. 237-12.30A.
Yoshioka, Hisato, 4,383,574, Cl. 165-43.000.

Diesen, Ronald W., to Dow Chemical Company, The. Catalytic dehydrohalogenation process. 4,384,159, Cl. 585-642.000.

Digital Equipment Corporation: *See*—
Lipcon, Jesse B., 4,384,363, Cl. 455-58.000.

Di Monte, Ronald J. Diagnostic ignition spark detector. 4,384,256, Cl. 324-396.000.

Dines, Martin B., to Occidental Research Corporation. Process for extracting tungsten and molybdenum values from solution. 4,383,980, Cl. 423-54.000.

Disteldorf, Walter: *See*—
Reiter, Udo; Lehmann, Helmut; Disteldorf, Walter; and Schenck, Hans-Uwe, 4,384,061, Cl. 524-104.000.

DiToro, Michael J., to General Signal Corp. High speed graphics. 4,384,286, Cl. 340-727.000.

Divers, Raymond T.; Kassouf, Thomas L.; and Circelli, Joan, to Carrier Corporation. Electric terminal. 4,383,726, Cl. 339-198.00R.

DMA Systems Corporation: *See*—
McNeil, Michael, 4,384,311, Cl. 360-128.000.

Dobashi, Toshio: *See*—
Nozawa, Hideyo; and Dobashi, Toshio, 4,383,743, Cl. 354-64.000.

Dobhan, Herbert: *See*—
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; Kunkel, Heinrich; Dobhan, Herbert; Horling, Peter; and Klupfel, Norbert, 4,383,670, Cl. 249-60.000.

Doctor, Alan P., to Eltec Instruments, Inc. Differential pyroelectric detector. 4,384,207, Cl. 250-349.000.

Dr.-Ing. Reiner Foerst GmbH: *See*—
Foerst, Reiner, 4,383,827, Cl. 434-69.000.

Doi, Akira: *See*—
Yamakawa, Akira; Doi, Akira; and Doi, Yoshihiko, 4,383,957, Cl. 264-65.000.

Doi, Yoshihiko: *See*—
Yamakawa, Akira; Doi, Akira; and Doi, Yoshihiko, 4,383,957, Cl. 264-65.000.

Domitrowich, Joseph R.: *See*—
Lee, Yong K.; and Domitrowich, Joseph R., 4,384,350, Cl. 365-229.000.

Domocon S.A.: *See*—
Dyson, John M., 4,383,862, Cl. 106-88.000.

Donohue, J. A.: *See*—
Paschke, Edward E.; and Donohue, J. A., 4,384,112, Cl. 528-347.000.

Donovan, William F.: *See*—
Coates, Arthur D.; Donovan, William F.; Rakaczky, John A.; and Scott, Wayman E., 4,383,485, Cl. 102-364.000.
Stansbury, LeRoy, Jr.; and Donovan, William F., 4,383,472, Cl. 89-7.000.

Doty, Charles T.; and Mosier, Douglas R., to Minnesota Mining and Manufacturing Company. Control system for plural transformer relays. 4,384,314, Cl. 361-160.000.

Dougherty Brothers Company: *See*—
Dougherty, Thomas R., 4,383,618, Cl. 215-216.000.
Dougherty, Thomas R., to Dougherty Brothers Company. Childproof container. 4,383,618, Cl. 215-216.000.
Douwe Egberts Koninklijke Tabaksfabriek-Koffiebranderijen-Theehandel B.V.: *See*—
van der Haar, Rijk; Hopkins, Brian M.; and van Hattem, Jan C., 4,383,537, Cl. 131-280.000.
Dow Chemical Company, The: *See*—
Bermudez, Mauricio; Klimpel, Richard R.; and Sands, Steven D., 4,384,010, Cl. 426-618.000.
Daly, William H., 4,384,113, Cl. 536-101.000.
Diesen, Ronald W., 4,384,159, Cl. 585-642.000.
Larsen, Eric R.; and Ecker, Ernest L., 4,384,109, Cl. 528-274.000.
Renga, James M., 4,384,115, Cl. 544-97.000.
Rogers, Richard B.; Claus, Jon S.; and Egli, Eric A., 4,383,851, Cl. 71-94.000.
Smith, Harry A., 4,384,085, Cl. 526-62.000.
Sonnabend, Lawrence F., 4,384,096, Cl. 526-313.000.
Dragoco Gerberding und Co. GmbH: *See*—
Hoffmann, Paul, 4,383,833, Cl. 8-438.000.
Drake, Charles A.: *See*—
Murtha, Timothy P.; and Drake, Charles A., 4,383,940, Cl. 252-460.000.
Dresser Industries, Inc.: *See*—
Sankey, Edwin W., 4,383,794, Cl. 414-694.000.
Drope, Eckard; Jansky, Karl P.; Pross, Wilhelm; and Breuer, Wolfram, deceased (by Breuer, Gisela, Axel W. Breuer, Ingo R. Breuer, executors), to Bayer Aktiengesellschaft; and Compur-Electronic GmbH. Method and an apparatus for monitoring the subjection of individual people to harmful gases. 4,384,283, Cl. 340-632.000.
Dubash, Darius D.; Kaplan, Leonard L.; and Ziets, George A., to Ortho Pharmaceutical Corporation. Hemorrhoidal compositions. 4,383,986, Cl. 424-25.000.
Duifhuis, Hendrikus; Willems, Leonardus F.; and Sluyter, Robert J., to U.S. Philips Corporation. Method of and system for determining the pitch in human speech. 4,384,335, Cl. 364-513.000.
Dunaway, James L.: *See*—
Solomon, Steven P.; and Dunaway, James L., 4,383,630, Cl. 225-103.000.
Dunbar, Glenn G. Trailer support frame apparatus. 4,383,711, Cl. 296-181.000.
Dunham-Bush, Inc.: *See*—
Gianni, Sebastian J.; and Schaefer, Donald D., 4,383,802, Cl. 417-12.000.
Dunn, Aubrey J.: *See*—
Durenec, Peter; and Dunn, Aubrey J., 4,383,548, Cl. 137-321.000.
Duo-Fast Corporation: *See*—
Potucek, Frank R., 4,383,608, Cl. 206-347.000.
Du Pont de Nemours, E. I., and Company: *See*—
Ernst, Richard E.; and Paul, Donald C., 4,383,895, Cl. 203-77.000.
Krespan, Carl G.; and King, Alicia P., 4,384,128, Cl. 549-550.000.
Mirhej, Michael E., 4,383,817, Cl. 425-463.000.
Verhoeven, Laurentius M., 4,383,724, Cl. 339-19.000.
Durenec, Peter; and Dunn, Aubrey J., to United States of America, Army. Evacuating-charging valve assembly. 4,383,548, Cl. 137-321.000.
Duret, Bernard: *See*—
Bricard, Alain; Chabanne, Jacques; and Duret, Bernard, 4,383,576, Cl. 165-104.170.
Dyck, George J., to International Road Dynamics Inc. Sealed load cell construction. 4,383,584, Cl. 177-208.000.
Dynamit Nobel Aktiengesellschaft: *See*—
Schulte, Hans; and Voges, Christoph, 4,383,874, Cl. 149-21.000.
Dyson, John M., to Domocon S.A. Concrete. 4,383,862, Cl. 106-88.000.
E. R. Squibb & Sons, Inc.: *See*—
Petrillo, Edward W., Jr., 4,384,123, Cl. 548-409.000.
Eastman Kodak Company: *See*—
Greenwald, Roger J.; and Brownstein, Scott A., 4,384,238, Cl. 315-151.000.
Eaton, Paul E., to Petrolite Corporation. Fouling test apparatus. 4,383,438, Cl. 73-61.200.
Ebauches, S.A.: *See*—
Debely, Pierre, 4,384,232, Cl. 310-370.000.
Eberts, Allen F.: *See*—
Giordano, George P.; Almanza, Maximino; Eberts, Allen F.; and La Dow, William R., 4,383,386, Cl. 46-14.000.
Echlin Inc.: *See*—
Bueler, Richard C., 4,383,717, Cl. 303-7.000.
Ecker, Ernest L.: *See*—
Larsen, Eric R.; and Ecker, Ernest L., 4,384,109, Cl. 528-274.000.
Ecolaire Incorporated: *See*—
Walters, Thomas, Jr., 4,383,546, Cl. 137-240.000.
Ecolochem, Inc.: *See*—
Muller, Richard S.; and Dickerson, Richard C., 4,383,920, Cl. 210-87.000.
Egli, Eric A.: *See*—
Rogers, Richard B.; Claus, Jon S.; and Egli, Eric A., 4,383,851, Cl. 71-94.000.
Eichinger, Johann: *See*—
Huebl, Julius; and Eichinger, Johann, 4,383,520, Cl. 126-424.000.
Eimer, Klaus: *See*—
Bochinski, Rolf; Eimer, Klaus; Schildmann, Hans W.; and Schmitz, Gunther, 4,383,346, Cl. 15-104.06R.
Eisele, Dieter, to BBC Brown, Boveri & Company, Limited. Method for the production of a sealed housing for a disk shaped semiconductor body which exhibits at least one pn-transition. 4,383,355, Cl. 29-588.000.
Ekstrom, Lincoln: *See*—
Nyman, Frederick R.; Stevens, Barry; and Ekstrom, Lincoln, 4,383,961, Cl. 264-107.000.
Eldin, Sameer H.: *See*—
Zahir, Sheik A.; and Eldin, Sameer H., 4,384,129, Cl. 549-560.000.
Elfert, Klaus, to Bayer Aktiengesellschaft. Semipermeable membranes. 4,383,923, Cl. 210-654.000.
Ellison, Joseph: *See*—
Willis, Frederick G.; Radtke, Richard R.; Ellison, Joseph; Fozo, Steven R.; and Kern, Glenn A., 4,383,441, Cl. 73-117.300.
Eltec Instruments, Inc.: *See*—
Doctor, Alan P., 4,384,207, Cl. 250-349.000.
Elwell, John L., Jr., to United States of America, Air Force. Solvent mixture for removing cured polyurethane coatings. 4,383,867, Cl. 106-311.000.
Emerson Electric Co.: *See*—
MacCormack, Alexander A.; and Kieffer, Vernon E., 4,383,439, Cl. 73-116.000.
Emhart Industries, Inc.: *See*—
Chestnut, Benjamin F., 4,384,176, Cl. 200-1.00A.
Engenhart, Reinhold: *See*—
Ahrendt, Gerhard; Benz, Roland; Engenhart, Reinhold; and Schmidt, Viktor, 4,383,655, Cl. 242-47.000.
Eppolito, Salvatore. Oxygen caddy. 4,383,528, Cl. 128-205.220.
Eriksson, Hans E. Bin with pneumatic agitator panel. 4,383,766, Cl. 366-106.000.
Ernst, Hermann H. F. Centrifugal fluid seal. 4,383,720, Cl. 308-187.100.
Ernst, Richard E.; and Paul, Donald C., to Du Pont de Nemours, E. I., and Company. Purification of 1,4-butanediol. 4,383,895, Cl. 203-77.000.
Esanu, Andre, to Societe de Conseils de Recherches et D'Applications Scientifiques. Furo-(3,4-c)-pyridine derivatives and their pharmaceutical use. 4,383,998, Cl. 424-256.000.
Eskew, Douglas H.; Marowski, Raymond M.; and Sevy, Danny R., to International Business Machines Corporation. Torque-limiting carriage return knock-off mechanism. 4,383,777, Cl. 400-314.600.
ESP Co., Ltd.: *See*—
Shibuya, Hisatake, 4,383,466, Cl. 84-313.000.
Esparza, Joe O.: *See*—
Kruka, Vitold R.; and Esparza, Joe O., 4,383,783, Cl. 405-171.000.
Essilor International, Cie Generale d'Optique: *See*—
Laprade, Gerard; Marouby, Jean-Pierre; and Bertin, Charly, 4,383,673, Cl. 249-142.000.
Ethyl Products Company: *See*—
Page, Frank C., III, 4,383,623, Cl. 222-521.000.
Eurometaal N.V.: *See*—
Sie, Swan L.; and Ringdal, Lars, 4,383,468, Cl. 86-1.00R.
Evgenievich, Paton B.; Mikhailovich, Biletsky, S.; Fedorovich, Tereschenko A.; and Pavlovich, Barvinko J. Crack arresting device for limiting propagation of cracks in welded structures fabricated from sheets. 4,383,556, Cl. 138-172.000.
Ewald, Roland, to G. L. Rexroth GmbH. Apparatus for controlling a single action operating cylinder, especially of a press operating cylinder. 4,383,476, Cl. 91-442.000.
Exxon Research and Engineering Co.: *See*—
Langer, Arthur W., Jr., 4,383,938, Cl. 252-429.00B.
Newman, Neil F.; and Kowalski, Ronald C., 4,384,072, Cl. 525-356.000.
Platt, Robert J., 4,383,553, Cl. 138-46.000.
F.LLI Pagnoni S.p.A.: *See*—
Roccati, Sergio; and Cecini, Lino, 4,383,814, Cl. 425-338.000.
Fairchild Camera & Instrument Corp.: *See*—
Lee, Yong K.; and Domitrowich, Joseph R., 4,384,350, Cl. 365-229.000.
Varshney, Ramesh C., 4,384,353, Cl. 371-38.000.
Fairchild, Wayne K. Tensioning control device. 4,383,631, Cl. 226-186.000.
Fan, Albert K.: *See*—
Taubner, Fred R.; Chiola, Vincent; and Fan, Albert K., 4,384,237, Cl. 313-486.000.
Farfisa S.p.A.: *See*—
Aliprandi, Lucio M., 4,383,463, Cl. 84-1.270.
Farkas, Ralph: *See*—
Spitler, Clem; and Farkas, Ralph, 4,384,224, Cl. 310-81.000.
Fasig, Harold A., to Burroughs Corporation. Track controller for a document processor. 4,384,202, Cl. 250-223.00R.
FBC Limited: *See*—
Bathgate, Raymond J., 4,384,048, Cl. 521-89.000.
Fedder, Richard C.; Schafner, George C.; Robson, Thomas; and McMahon, Thomas F., to Burroughs Corporation. Unitary, modular, demountable optical system for laser diode/printing copying apparatus. 4,383,755, Cl. 355-11.000.
Federal-Mogul Corporation: *See*—
Matzelle, Albert J., 4,383,719, Cl. 384-282.000.
Fedorovich, Tereschenko A.: *See*—
Evgenievich, Paton B.; Mikhailovich, Biletsky, S.; Fedorovich, Tereschenko A.; and Pavlovich, Barvinko J., 4,383,556, Cl. 138-172.000.
Fehr, Robert W. Pet litter retriever. 4,383,710, Cl. 294-1.0BA.
Feinberg, Howard. Vise jaw assembly having an inclineable platform for supporting a workpiece at a selected angle. 4,383,682, Cl. 269-76.000.
Felburn, John P. Steerable trailer. 4,383,698, Cl. 280-426.000.
Fenwick, Loel. Universal clamp. 4,383,351, Cl. 24-263.00B.

Fergg, Berthold; Osegowitsch, Viktor; and Viehrig, Wolfgang, to Agfa-Gevaert Aktiengesellschaft. Cassette for film units. 4,383,748, Cl. 354-179.000.

Ferguson, Alan N.; and Reynolds, Kenneth, to Minnesota Mining and Manufacturing Company. Thiopyrylium dye sensitized photoconductive materials. 4,384,034, Cl. 430-83.000.

Ferguson, John H., Jr.: *See*—
Woodruff, Frank; Ferguson, John H., Jr.; and Hoffman, John R., 4,383,647, Cl. 239-265.190.

Fernandes, Roosevelt A.: *See*—
Stillwell, Howard R.; and Fernandes, Roosevelt A., 4,384,289, Cl. 340-870.170.

F'Geppert, Erwin, to United States of America, Army. Reversible kingpin for trailers. 4,383,697, Cl. 280-415.00A.

Fiala, Ernst, to Volkswagenwerk Aktiengesellschaft. Arrangement for fuel supply to the combustion chambers of a vehicle internal combustion engine with engine braking disconnection. 4,383,514, Cl. 123-481.000.

Fichtner, Karl-Heinz, to Balzer and Droll KG. Method and apparatus for the production of rotor and stator sheet packets for electrical machines. 4,383,356, Cl. 29-598.000.

Fields, Ellis K.: *See*—
Nimry, Tayseer S.; Fields, Ellis K.; and Paschke, Edward E., 4,384,071, Cl. 524-600.000.

Figgie International Inc.: *See*—
Hychalk, Leonard V., 4,383,617, Cl. 212-189.000.

Figiel, Francis J.; and Osterman, Harry F., to Allied Corporation. Vapor sprayer and process for providing a volatile fluid as a vapor spray. 4,383,645, Cl. 239-13.000.

Fikentscher, Rolf: *See*—
Degen, Hans-Juergen; Guender, Wolf; Frey, Guenter; Streit, Werner; Fikentscher, Rolf; and Wulz, Klaus, 4,383,834, Cl. 8-551.000.

Fillman, Harold T.: *See*—
Wade, Charles G.; and Fillman, Harold T., 4,383,873, Cl. 149-2.000.

Findlay, James W.; Darby, John; Lewis, David; and Wenn, Donald F., to Nu-Way Energy Limited. Air-heating gas burner. 4,383,824, Cl. 432-222.000.

Finley, Richard O., to Plastiflex Company International. Helically wound hose from co-extruded profile with reinforcing ribs interlocked at adjacent convolutions. 4,383,555, Cl. 138-129.000.

Fitzner, Marcel; and Pinnell, Vesta P., Jr. Removable tray for microphone stands. 4,383,487, Cl. 108-27.000.

Flaig, Ulrich: *See*—
Schelling, Bernd; and Flaig, Ulrich, 4,384,251, Cl. 324-207.000.

Flake, Wolfgang: *See*—
Roeder, Eckhard; and Flake, Wolfgang, 4,383,446, Cl. 73-579.000.

Flaum, Charles, to Schlumberger Technology Corporation. Neutron method and apparatus for determining total cross-section. 4,384,205, Cl. 250-265.000.

Fleischer, Gerd: *See*—
Freytag, Oskar; Bleyer, Rainer; Geyenot, Volker; Fleischer, Gerd; and Michael, Jugen, 4,383,771, Cl. 384-121.000.

Flitterman, Michael: *See*—
Briefer, Dennis K.; Flitterman, Michael; and Silverman, Richard, 4,384,173, Cl. 179-115.5PV.

Flotow, Richard A.; and Lantz, Lawrence C., to Dana Corporation. Method of making spring clutch collector ring. 4,383,352, Cl. 29-418.000.

Foerst, Reiner, to Dr.-Ing. Reiner Foerst GmbH. Driving simulator. 4,383,827, Cl. 434-69.000.

Fontana, Alvaro, to Raimondi S.p.A. Gasket for statically sealing high pressure and temperature fluids. 4,383,694, Cl. 277-231.000.

Ford Motor Company: *See*—
Chattha, Mohinder S., 4,384,103, Cl. 528-83.000.
Lemieux, Marvin A.; and Killgoar, Paul C., Jr., 4,384,079, Cl. 525-329.300.
Willis, Frederick G.; Radtke, Richard R.; Ellison, Joseph; Fozo, Steven R.; and Kern, Glenn A., 4,383,441, Cl. 73-117.300.

Forest Industries Machine Corp.: *See*—
Gregoire, James L.; Wismer, Robert D.; and Brouer, Robert L., 4,383,561, Cl. 144-245.00A.

Forman, Donald B., to United States of America, Navy. Pressure formed fiber optic connector. 4,383,736, Cl. 350-320.000.

Forster, Friedrich M. O. Means for achieving parallelism of the magnetic axes of a differential magnetic field probe. 4,384,253, Cl. 324-244.000.

Forster, Peter. Mattress for a sitting or lying person. 4,383,342, Cl. 5-432.000.

Foulletier, Louis: *See*—
Bertocchio, Rene; Foulletier, Louis; and Lantz, Andre, 4,383,929, Cl. 252-8.050.

Fouquet, Gerd: *See*—
Merger, Franz; and Fouquet, Gerd, 4,384,120, Cl. 546-251.000.

Four Star Corporation: *See*—
Ingram, Charles E., 4,383,627, Cl. 224-315.000.

Fowler, Anthony J., to Minnesota Mining and Manufacturing Co. Filamentary structure. 4,384,022, Cl. 428-296.000.

Fox, Daniel W.; and Peters, Edward N., to General Electric Company. Process for preparing purified bis(3,5-dialkyl-4-hydroxyphenyl) sulfone. 4,384,143, Cl. 568-33.000.

Fox, Gerard J., to Dean Machine Products, Inc. Folding stock for firearms and firearms employing same. 4,383,384, Cl. 42-72.000.

Fox, Hilbert V. Pneumatic drive system for land vehicles. 4,383,589, Cl. 180-165.000.

Fozo, Steven R.: *See*—
Willis, Frederick G.; Radtke, Richard R.; Ellison, Joseph; Fozo, Steven R.; and Kern, Glenn A., 4,383,441, Cl. 73-117.300.

Fraefel, Wolfgang; Lichti, Heinz F.; and Brunetti, Massimo, to Solco Basel AG. Process for the preparation of new organ transplants. 4,383,832, Cl. 8-94.110.

Framatome: *See*—
Lavalerie, Claude; and Borrel, Christian, 4,383,900, Cl. 122-491.000.

Frank, Walter; Bendszus, Otto; Traenckner, Hans-Joachim; and Freier, Hans-Joachim, to Bayer Aktiengesellschaft. Photopolymerizable polyester resins, a process for their production and their use as lacquer binders. 4,383,902, Cl. 204-159.150.

Franke, Kurt, to Siemens Aktiengesellschaft. Tomographic apparatus for the production of transverse layer images. 4,384,359, Cl. 378-9.000.

Frankenfeld, Klaus: *See*—
Beltz, Klaus; Frankenfeld, Klaus; Lehmann, Rainer; and Zintl, Inge, 4,383,978, Cl. 423-9.000.

Frankle, Jonathan A.; and McCann, John J., to Polaroid Corporation. Method and apparatus for lightness imaging. 4,384,336, Cl. 382-49.000.

Frantz, David W.; and Lazaretti, Louis, to Gladwin Corporation. Dummy bar for continuous casting equipment. 4,383,571, Cl. 164-446.000.

Franz, Arvel O.; and Gray, John L., to Chemical Products Corporation. Autogenously dispersible alkaline earth metal carbonate composition. 4,383,936, Cl. 252-363.500.

Fratzer, Gerhard; and Beck, Bernhard, to Degussa Aktiengesellschaft. Catalytic waste gas converter for combustion machines. 4,383,974, Cl. 422-176.000.

Fratzer, Gerhard; and Beck, Bernhard, to Degussa Aktiengesellschaft. Catalytic waste gas converter for combustion machines. 4,383,975, Cl. 422-176.000.

Freier, Hans-Joachim: *See*—
Frank, Walter; Bendszus, Otto; Traenckner, Hans-Joachim; and Freier, Hans-Joachim, 4,383,902, Cl. 204-159.150.

Fresken, Hans: *See*—
Koepke, Gunther; Frenken, Hans; Bussmann, Heinrich; and Browatzki, Kurt, 4,384,015, Cl. 427-402.000.

Frey, Guenter: *See*—
Degen, Hans-Juergen; Guender, Wolf; Frey, Guenter; Streit, Werner; Fikentscher, Rolf; and Wulz, Klaus, 4,383,834, Cl. 8-551.000.

Freytag, Oskar; Bleyer, Rainer; Geyenot, Volker; Fleischer, Gerd; and Michael, Jugen. Fluid bearing. 4,383,771, Cl. 384-121.000.

Fricker, Siegfried. Core body for the recessed positioning of an anchor element in a concrete member. 4,383,674, Cl. 249-177.000.

Fricker, Siegfried. Quick-release attachment for core body in concrete casting formwork. 4,383,675, Cl. 249-177.000.

Fritz Gegauf Aktiengesellschaft Bernina-Nachmaschinenfabrik: *See*—
Stillhard, Otmar, 4,384,241, Cl. 318-317.000.

Fritzsche Dodge & Olcott Inc.: *See*—
Britten-Kelly, Michael R.; Shuster, Edward J.; and Hansen, Odd, 4,383,943, Cl. 252-522.00R.

Fry, Emanuel D., to Tecumseh Products Company. Line break protection for multispeed motor. 4,384,312, Cl. 361-24.000.

Fu, Horng-Sen: *See*—
Tasch, Al F., Jr.; Chatterjee, Pallab K.; and Fu, Horng-Sen, 4,384,301, Cl. 357-23.000.

Fuchs, Phillip L., to Purdue Research Foundation. Process for synthesis of optically pure prostaglandin E_2 and analogs thereof. 4,384,127, Cl. 549-546.000.

Fuchs, Rainer: *See*—
Jautelat, Manfred; Arlt, Dieter; Lantzsch, Reinhard; Fuchs, Rainer; Riebel, Hans-Jochem; Schroder, Rolf; and Harnisch, Horst, 4,384,114, Cl. 542-441.000.

Fuji Jukogyo Kabushiki Kaisha: *See*—
Nakamura, Hiroyuki; Shikata, Makoto; Ohgami, Masaaki; and Hara, Kazuo, 4,383,510, Cl. 123-352.000.

Fuji Photo Film Co., Ltd.: *See*—
Ohara, Yuji; and Ohnishi, Masahiro, 4,384,297, Cl. 346-108.000.
Sasaki, Jun, 4,384,036, Cl. 430-113.000.

Fuji Photo Optical Co., Ltd.: *See*—
Suzuki, Masane; and Kanaya, Motonori, 4,383,729, Cl. 350-96.100.

Fujii, Tadashiro: *See*—
Matsumoto, Kunio; Noda, Toshiharu; Fujii, Tadashiro; Watanabe, Susumu; Matsumoto, Kazuhiko; and Katsuragi, Shigeo, 4,384,041, Cl. 435-24.000.

Fujimoto, Hirotsugu; Hayashi, Tsutomu; and Hosono, Tatsukuma, to Hitachi, Ltd.; and Hitachi Engineering Co., Ltd. Semi-automatic scanner for ultrasonic flaw detection. 4,383,448, Cl. 73-637.000.

Fujisawa Pharmaceutical Co., Ltd.: *See*—
Hashimoto, Masashi; Aratani, Matsuhiko; and Sawada, Kozo, 4,383,945, Cl. 260-239.00A.

Fujita, Shozoo, to Mitsubishi Denki Kabushiki Kaisha. Modular large scale image display device. 4,384,279, Cl. 340-815.200.

Fujitsu Limited: *See*—
Hirano, Yutaka; Hayakawa, Masahiro; Ashida, Hideo; and Ikuta, Hideki, 4,384,215, Cl. 307-109.000.
Mikome, Koichi, 4,384,345, Cl. 365-104.000.
Nakano, Tomio, 4,384,347, Cl. 365-189.000.
Nozaki, Shigeki, 4,384,348, Cl. 365-201.000.

Fujitus, Satoru: *See*—
Miyazaki, Haruhiko; Shiomi, Yasushi; Fujitus, Satoru; Masunaga, Katsuro; and Yanagisawa, Hiroshi, 4,384,133, Cl. 560-204.000.

Fukahori, Hidehiko: *See*—
Iwashita, Tomonori; and Fukahori, Hidehiko, 4,383,750, Cl. 354-271.000.

Fukuda, Shozo: *See*—
Kubo, Masayoshi; Hasegawa, Akira; Sakaguchi, Katsuyoshi; and Fukuda, Shozo, 4,383,808, Cl. 425-47.000.

Fukuhara, Hiroshige; Hirota, Yukitsuga; and Sone, Masazumi, to Nissan Motor Company, Limited. Noise suppressor for vehicle digital system. 4,384,331, Cl. 364-431.120.

Fukui, Takeo: *See*—
Irimajiri, Shoichiro; and Fukui, Takeo, 4,383,508, Cl. 123-193.00P.

Fukunaga, Osamu: *See*—
Okamura, Kiyonobu; Mizuo, Shindo; and Fukunaga, Osamu, 4,384,023, Cl. 428-338.000.

Funada, Fumiaki; and Matsuura, Masataka, to Sharp Kabushiki Kaisha. Liquid crystal display means. 4,383,738, Cl. 350-349.000.

Futaba Kinzoku Kogyo Kabushiki Kaisha: *See*—
Nishimura, Tamotsu, 4,383,707, Cl. 292-110.000.

G.A. Pfleiderer GmbH & Co., KG: *See*—
Rother, Bruno; and Trommen, Hartmut, 4,383,965, Cl. 264-257.000.

G.D Societa' per Azioni: *See*—
Seragnoli, Enzo, 4,383,633, Cl. 226-194.000.

G. L. Rexroth GmbH: *See*—
Ewald, Roland, 4,383,476, Cl. 91-442.000.

Gaku, Morio: *See*—
Ayano, Satoshi; Gaku, Morio; Ikeguchi, Nobuyuki; Kinbara, Hidenori; and Osaki, Yasunari, 4,383,903, Cl. 204-159.160.

Galante, Gary, to Avon Products, Inc. Nail lacquer compositions. 4,384,058, Cl. 524-32.000.

Galian, Boris A.: *See*—
Paton, Boris E.; Lebedev, Vladimir K.; Kuchuk-Yatsenko, Sergei I.; Sakharnov, Vasily A.; Galian, Boris A.; Asoiants, Grigory B.; Vorobei, Mikhail F.; and Solodovnikov, Sergei A., 4,383,786, Cl. 409-299.000.

Galimova, Venera U.: *See*—
Muldashev, Ernst R.; Nigmatullin, Rafik T.; Galimova, Venera U.; Zakhvatkina, Klara A.; and Muslimov, Sagit A., 4,383,338, Cl. 3-13.000.

Galli, Mario: *See*—
Sisti, Giorgio; Galli, Mario; and Trestianu, Sorin, 4,383,839, Cl. 55-67.000.

Ganoung, David P. Apparatus using a continuously variable ratio transmission to improve fuel economy. 4,383,456, Cl. 74-866.000.

Gardner, Mark R.: *See*—
Carroll, Arthur B.; Lazarevich, Vladeta D.; and Gardner, Mark R., 4,384,201, Cl. 250-221.000.

Garrett, John L, to Good-All Electric Company, Inc. Apparatus and method for measuring the IR drop free cathodic protection potential created by a rectifier and controlling rectifier operation to achieve a desired level thereof. 4,383,900, Cl. 204-147.000.

Garrett, Thomas B.: *See*—
Herweh, John E.; Garrett, Thomas B.; and Magnusson, Alan B., 4,384,094, Cl. 526-268.000.

Gaske, Joseph E.; Plaisance, Thomas H.; and Pennanen, Hannu K., to DeSoto, Inc. Pigmented, antioxidant-containing solution coating compositions. 4,384,070, Cl. 524-597.000.

Gast, Theodor: *See*—
Hamisch, Hans-Joachim; Boruschewitz, Manfred; and Gast, Theodor, 4,383,434, Cl. 73-35.000.

Gaudiana, Russell A.: *See*—
Rogers, Howard G.; Gaudiana, Russell A.; Manello, Jeannette S.; and Sahatjian, Ronald A., 4,384,107, Cl. 528-183.000.

Gaulin Corporation: *See*—
Pandolfe, William D., 4,383,769, Cl. 366-337.000.

Gaus, Harry, to Postalia GmbH. Weighing device with a vibrating string. 4,383,585, Cl. 177-210.0FP.

Gautier, Francois: *See*—
Pierrot, Robert; Gautier, Francois; and Crochet, Pierre, 4,384,290, Cl. 343-6.00A.

Gelernt, Barry, to Perkin-Elmer Corporation, The. Auto-zero system for pressure transducers. 4,383,431, Cl. 73-4.00R.

General Electric Company: *See*—
Campbell, John R.; and Lynch, Jerry C., 4,384,108, Cl. 528-196.000.
Dembowski, Peter V.; and Schilke, Peter W., 4,383,854, Cl. 419-1.000.
Fox, Daniel W.; and Peters, Edward N., 4,384,143, Cl. 568-33.000.
Imam, Imdad, 4,384,182, Cl. 200-82.00B.
Larsen, Einar V.; Baker, Daniel H.; and Bowler, Colin E. J., 4,384,246, Cl. 322-58.000.
Larson, Richard I.; and Brassfield, Henry C., 4,383,953, Cl. 264-0.500.
LeDuc, Kenneth C.; and Bellino, Joseph P., 4,384,030, Cl. 429-174.000.
Luxon, Bruce A., 4,384,063, Cl. 524-159.000.
Moore, James E.; Orkin, Ona V.; and Schroeter, Siegfried H., 4,384,026, Cl. 428-412.000.
Qurnell, Frank D.; and Peloquin, Arthur V., 4,383,394, Cl. 51-241.00S.
Stillwell, Howard R.; and Fernandes, Roosevelt A., 4,384,289, Cl. 340-870.170.
Wells, Robert C., 4,384,203, Cl. 250-227.000.

General Foods Corporation: *See*—
McSweeney, Daniel R., 4,384,005, Cl. 426-250.000.

General Motors Corporation: *See*—
Kline, Richard H., 4,384,031, Cl. 429-176.000.
Nestor, Charles R., 4,384,167, Cl. 174-71.00R.
Powell, Thomas M., 4,383,507, Cl. 123-179.00H.
Riddel, John W., 4,383,411, Cl. 60-303.000.

General Refractories Company: *See*—
Stein, Joseph L.; and Maskell, Thomas J., 4,383,624, Cl. 222-600.000.

General Signal Corp.: *See*—
DiToro, Michael J., 4,384,286, Cl. 340-727.000.

Genpak Corporation: *See*—
Rider, Edward W., Jr., 4,383,954, Cl. 264-40.500.

Gerlach, LeRoy E.: *See*—
McCumber, Roger D.; and Gerlach, LeRoy E., 4,384,196, Cl. 235-375.000.

Geurtsen, Friedrich H. H.; Kebbel, Waldemar S.; and Meyer, Manfred, to Dennison Manufacturing Company. Web transport system with electro-optical label detection. 4,383,880, Cl. 156-361.000.

Geyenot, Volker: *See*—
Freytag, Oskar; Bleyer, Rainer; Geyenot, Volker; Fleischer, Gerd; and Michael, Jugen, 4,383,771, Cl. 384-121.000.

Geyer, Otto-Christian: *See*—
Wingler, Frank; Leusner, Bernd; Schwabe, Peter; and Geyer, Otto-Christian, 4,384,097, Cl. 526-328.500.

GFM Gesellschaft fuer Fertigungstechnik und Maschinenbau: *See*—
Maecker, Kurt, 4,384,333, Cl. 364-474.000.

Gianni, Sebastian J.; and Schaefer, Donald D., to Dunham-Bush, Inc. Oil equalization system for parallel connected compressors. 4,383,802, Cl. 417-12.000.

Gift, Warren H., to Plaskolite, Inc. Production of acrylate impact resistant moldable thermoplastic. 4,384,077, Cl. 525-81.000.

Giles, Brian, to GOM Automation Limited. Unscramblers for bowl shaped articles. 4,383,602, Cl. 198-396.000.

Gillich, Thomas N.; Walls, John E.; Wanat, Stanley F.; and Rozell, William J., to American Hoechst Corporation. Electrochemically treated metal plates. 4,383,897, Cl. 204-33.000.

Gillis, Gordon A.; and Lucier, Richard. Combination coal and wood stove. 4,383,517, Cl. 126-61.000.

Giordano, George P.; Almanza, Maximino; Eberts, Allen F.; and La Dow, William R., to CPG Products Corp. Toy skillet and knife having simulated sound-producing capabilities. 4,383,386, Cl. 46-14.000.

Gisler, Raija-Leena: *See*—
Rastas, Jussi K.; Bjorkqvist, Lars-Goran; Gisler, Raija-Leena; and Liukkonen, Simo S., 4,383,979, Cl. 423-36.000.

Gladel, Gerard: *See*—
Peilloud, Fernand; and Gladel, Gerard, 4,384,053, Cl. 523-153.000.

Gladwin Corporation: *See*—
Frantz, David W.; and Lazaretti, Louis, 4,383,571, Cl. 164-446.000.

Glass, Michael: *See*—
Cea, Theresa; Posta, Joseph D.; and Glass, Michael, 4,384,004, Cl. 426-3.000.

Glassford, William E., Jr. Snare drum modulator. 4,383,467, Cl. 84-415.000.

Gmelin, Karl; and Peters, Klaus-Jurgen, to Robert Bosch GmbH. Fuel injection system. 4,383,513, Cl. 123-454.000.

Go, Santos W.; and Burzynski, Dennis J., to Owens-Illinois, Inc. Copolyesters. 4,384,106, Cl. 528-173.000.

Goettsch, Reijer; and Jetten, Arnold G. M., to Stamicarbon, B.V. Process for the purification of 2-pyrrolidone. 4,384,125, Cl. 548-555.000.

Goletto, Jean; and Coquard, Jean, to Rhone-Poulenc Industries. Hexamethylenediamine/adipic acid/dimer acid copolyamide. 4,384,111, Cl. 528-339.300.

GOM Automation Limited: *See*—
Giles, Brian, 4,383,602, Cl. 198-396.000.

Good-All Electric Company, Inc.: *See*—
Garrett, John L, 4,383,900, Cl. 204-147.000.

Goodnight, Hershel E.: *See*—
Reed, Robert D.; Martin, Richard R.; and Goodnight, Hershel E., 4,383,649, Cl. 239-429.000.

Goodyear Aerospace Corporation: *See*—
Correll, Harold E.; and Crossman, Richard L., 4,383,594, Cl. 188-71.500.

Goodyear Tire & Rubber Company, The: *See*—
Crum, George T.; Guster, Charles D., Jr.; and McClain, Myron M., 4,383,567, Cl. 152-209.00B.

Gordon, Jay E.; and Wells, Peter M. Portable insulated holder for beverage containers. 4,383,422, Cl. 62-457.000.

Gormley, William T., to Koppers Company, Inc. Method for promoting aluminum chloride catalyzed isomerization of sym-octahydrophenanthrene to sym-octahydroanthracene with aroyl halide. 4,384,156, Cl. 585-477.000.

Gosalvez, Mario G. Treatment of tumors with thiazolidine-4-carboxylic acid. 4,384,001, Cl. 424-270.000.

Goto, Haruyuki: *See*—
Nakamura, Kisaku; Jimi, Eiji; Goto, Haruyuki; and Hori, Akio, 4,383,886, Cl. 156-659.100.

Goto, Hitoshi: *See*—
Iwaki, Yoshiyuki; and Goto, Hitoshi, 4,384,225, Cl. 310-88.000.

Gough, Stanley T. D., to Rhone-Poulenc Agrochimie. O-Alkyl-S-alkyl-S-branched alkylphosphorodithioate soil insecticides. 4,383,991, Cl. 424-224.000.

Graco Inc.: *See*—
Quarve, Vernon K., 4,383,475, Cl. 91-337.000.

Graesser, Michael J. D.: *See*—
Morganti, Victor M.; Negi, Virendra S.; and Graesser, Michael J. D., 4,384,343, Cl. 364-900.000.

Graf, Martin, to Grob & Co. Aktiengesellschaft. Weaving heddle. 4,383,557, Cl. 139-93.000.
Grandemange, Francois G., to Vallourec. Device for the transfer of long products particularly bars or tubes. 4,383,604, Cl. 198-775.000.
Graniero, Ronald S.; and Truglia, John S. Apparatus for opening and closing the clamping members of a hanger. 4,383,362, Cl. 29-822.000.
Grant, Clyde P.; Look, Merton A.; and Lowe, Richard M., to Scott Paper Company. Perforate development electrode. 4,384,035, Cl. 430-103.000.
Grant, David C., Jr.: *See*—
Hutchings, Thomas J.; Grant, David C., Jr.; and Babcock, Gary D., 4,383,763, Cl. 356-350.000.
Granus Corporation: *See*—
Briefer, Dennis K.; Flitterman, Michael; and Silverman, Richard, 4,384,173, Cl. 179-115.5PV.
Gray, John L.: *See*—
Franz, Arvel O.; and Gray, John L., 4,383,936, Cl. 252-363.500.
Great Lakes Power Products, Inc.: *See*—
Allen, Harry L., Jr.; and Stewart, Michael J., 4,383,829, Cl. 440-75.000.
Green, David T., to United States Surgical Corporation. Surgical stapler apparatus with pivotally mounted actuator assemblies. 4,383,634, Cl. 227-19.000.
Greenwald, Roger J.; and Brownstein, Scott A., to Eastman Kodak Company. Electronic strobe flash apparatus for indirect and direct flash. 4,384,238, Cl. 315-151.000.
Gregoire, James L.; Wismer, Robert D.; and Brouer, Robert L., to Forest Industries Machine Corp. Infeed table for lumber edger. 4,383,561, Cl. 144-245.00A.
Grelat, Maurice, to Ciba-Geigy Corporation. Catalytically reductive ring closure for 1-acylamino-3,4-phthaloylacridones. 4,384,119, Cl. 546-59.000.
Griffiths, John M., to Brunswick Corporation. Combustion chamber scavenging system. 4,383,503, Cl. 123-73.0PP.
Grimm, Eberhard: *See*—
Oexler, Rudolf; and Grimm, Eberhard, 4,383,406, Cl. 57-406.000.
Grob & Co. Aktiengesellschaft: *See*—
Graf, Martin, 4,383,557, Cl. 139-93.000.
Grobert, Paul H.: *See*—
Deem, Paul S.; and Grobert, Paul H., 4,384,293, Cl. 343-113.00R.
Grogler, Gerhard: *See*—
Rasshofer, Werner; Grogler, Gerhard; and Kopp, Richard, 4,384,102, Cl. 528-73.000.
Grossi, Anthony V.; Hagelee, Leon A.; Hahn, Louis T.; and Marzocchi, Alfred, to Owens-Corning Fiberglas Corporation. Cationic alkenyl azabenzene chemically modified asphalts. 4,384,073, Cl. 525-54.500.
Grossi, Anthony V.; Hagelee, Leon A.; Hahn, Louis T.; and Marzocchi, Alfred, to Owens-Corning Fiberglas Corporation. Cationic chemically modified asphalts. 4,384,074, Cl. 525-54.500.
Grossi, Anthony V.; Hagelee, Leon A.; Hahn, Louis T.; and Marzocchi, Alfred, to Owens-Corning Fiberglas Corporation. Cationic alkenyl azabenzene and rubber modified asphalts. 4,384,075, Cl. 525-54.500.
Grossi, Anthony V.; Hagelee, Leon A.; Hahn, Louis T.; and Marzocchi, Alfred, to Owens-Corning Fiberglas Corporation. Cationic amine modified asphalt compositions. 4,384,099, Cl. 527-500.000.
Grovag Grossventiltechnik AG: *See*—
Heller, Ralph N., 4,383,693, Cl. 277-204.000.
Grutze, Joachim: *See*—
Preuss, Reinhard; Grutze, Joachim; Beck, Ulrich; Pantke, Hellmuth; and Vogel, Karl, 4,383,835, Cl. 8-602.000.
Gsellmann, Josef: *See*—
Kordesch, Karl; and Gsellmann, Josef, 4,384,029, Cl. 429-169.000.
GTE Laboratories Incorporated: *See*—
Moschetti, Anthony P.; Smith, J. Thomas; Quackenbush, Carr L. W.; Lingertat, Helmut; and Nehring, Vincent W., 4,383,958, Cl. 264-65.000.
Peled, Emanuel; and Lombardi, Anthony, 4,383,358, Cl. 29-623.100.
GTE Products Corporation: *See*—
Blaisdell, Ronald G.; Hough, Harold L.; and Kowalski, C. Edward, 4,384,319, Cl. 362-296.000.
de Vos, Hendrik A. J.; and Labouliere, Elzear R., 4,384,316, Cl. 362-147.000.
Taubner, Fred R.; Chiola, Vincent; and Fan, Albert K., 4,384,237, Cl. 313-486.000.
Guender, Wolf: *See*—
Degen, Hans-Juergen; Guender, Wolf; Frey, Guenter; Streit, Werner; Fikentscher, Rolf; and Wulz, Klaus, 4,383,834, Cl. 8-551.000.
Guibert, Raul, to Sunset Ltd. Galley meal processing system. 4,384,191, Cl. 219-400.000.
Gulbrandsen, Richard C., to Precision Twist Drill & Machine Co. Method and means of manufacturing a rotary cutting tool. 4,383,784, Cl. 408-144.000.
Gulf Oil Canada Ltd.: *See*—
Kizior, Thaddeus E., 4,383,914, Cl. 208-177.000.
Gulf Research & Development Company: *See*—
Ryu, Yumi P.; and Hartle, Robert J., 4,383,931, Cl. 252-32.70E.
Schulz, Johann G.; and Margosian, Daniel, 4,384,134, Cl. 562-410.000.
Vogel, Roger F.; Madgavkar, Ajay M.; and Swift, Harold E., 4,384,162, Cl. 585-830.000.
Gunji, Yoshihisa: *See*—
Okano, Hiroshi; and Gunji, Yoshihisa, 4,383,799, Cl. 415-219.00C.
Gurries, Raymond A., to Resonant Technology Company. Resonantly-powered plasticizer. 4,383,765, Cl. 366-76.000.
Guster, Charles D., Jr.: *See*—
Crum, George T.; Guster, Charles D., Jr.; and McClain, Myron M., 4,383,567, Cl. 152-209.00B.
Gusyatsky, Iosif A.: *See*—
Azarevich, Gennady M.; Maximov, Jury V.; Akimov, Boris I.; and Gusyatsky, Iosif A., 4,383,427, Cl. 72-71.000.
Gutberlet, L. Charles; Bertolacini, Ralph J.; Kozinski, Allen A.; and Hooper, Craig L., to Standard Oil Company (Indiana). Sweetening and desulfurizing sulfur-containing hydrocarbon streams. 4,383,916, Cl. 208-189.000.
Guth, Durward O. Sanitary washbottle kit assembly. 4,383,622, Cl. 222-209.000.
Guthrie, James L., to W. R. Grace & Co. Flexible polyurethane foam based on MDI. 4,384,050, Cl. 521-137.000.
Guthrie, James L., to W. R. Grace & Co. Flexible polyurethane foam based on MDI. 4,384,051, Cl. 521-137.000.
Haag, Gunter. Anti-entry device for surfaces. 4,384,280, Cl. 340-556.000.
Hastaja, Bruce A., to Michigan Technological University, Board of Control of. Molded wood particle products including integrally joined intersecting members. 4,384,019, Cl. 428-106.000.
Habgood, William C.: *See*—
Rackham, Michael; and Habgood, William C., 4,383,499, Cl. 122-18.000.
Hada, Nobuhide: *See*—
Okuda, Takao; and Hada, Nobuhide, 4,384,055, Cl. 523-174.000.
Hagelee, Leon A.: *See*—
Grossi, Anthony V.; Hagelee, Leon A.; Hahn, Louis T.; and Marzocchi, Alfred, 4,384,073, Cl. 525-54.500.
Grossi, Anthony V.; Hagelee, Leon A.; Hahn, Louis T.; and Marzocchi, Alfred, 4,384,074, Cl. 525-54.500.
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Grossi, Anthony V.; Hagelee, Leon A.; Hahn, Louis T.; and Marzocchi, Alfred, 4,384,099, Cl. 527-500.000.
Hagino, Isamu: *See*—
Ishikawa, Norikatsu; Onaka, Hidemi; Obata, Haruyuki; Tate, Takao; Tanahashi, Toshio; and Hagino, Isamu, 4,383,512, Cl. 123-440.000.
Hagler, Gerald E.; and Hatcher, Charles S., to Phillips Petroleum Company. Filamentary polypropylene and method of making. 4,384,098, Cl. 526-348.100.
Hahn, Louis T.: *See*—
Grossi, Anthony V.; Hagelee, Leon A.; Hahn, Louis T.; and Marzocchi, Alfred, 4,384,073, Cl. 525-54.500.
Grossi, Anthony V.; Hagelee, Leon A.; Hahn, Louis T.; and Marzocchi, Alfred, 4,384,074, Cl. 525-54.500.
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Grossi, Anthony V.; Hagelee, Leon A.; Hahn, Louis T.; and Marzocchi, Alfred, 4,384,099, Cl. 527-500.000.
Hailey, Charles D. Pipe tester. 4,383,436, Cl. 73-46.000.
Hakki, Moustafa I.: *See*—
Costales, Manuel; and Hakki, Moustafa I., 4,383,402, Cl. 57-105.000.
Hall, Gaddis G. Cable clamp. 4,383,668, Cl. 248-63.000.
Hall, Walter J.; and Jarosz, John M., to S&C Electric Company. Circuit interrupting device. 4,384,185, Cl. 200-148.00R.
Hamane, Tokuhito; and Tasai, Masaaki, to Matsushita Electric Industrial Company, Limited. Apparatus for inserting coils into core structure with inner and outer coil advancing means. 4,383,360, Cl. 29-736.000.
Hamisch, Hans-Joachim; Boruschewitz, Manfred; and Gast, Theodor, to Robert Bosch GmbH. Magnetostrictive engine-knock sensor. 4,383,434, Cl. 73-35.000.
Hanamoto, Hiroyuki; and Horie, Yoshihiro, to Minolta Camera Kabushiki Kaisha. Counter control in electrophotographic copier. 4,383,756, Cl. 355-14.0CU.
Hanaoka, Masanori; Kawabata, Takakazu; and Kondo, Tetsuo. Device for preventing change of fixed angle of distributor. 4,383,505, Cl. 123-146.50A.
Handrick, Kurt; Kolling, Georg; and Mensch, Fritz, to Bergwerksverband GmbH. Anthracene production from phenanthrene. 4,384,152, Cl. 585-320.000.
Handte, Reinhard; Bauer, Klaus; and Bieringer, Hermann, to Hoechst Aktiengesellschaft. Benzthiazole or benzoxazole ethers, herbicidal compositions and use. 4,383,850, Cl. 71-88.000.
Hansen, Odd: *See*—
Britten-Kelly, Michael R.; Shuster, Edward J.; and Hansen, Odd, 4,383,943, Cl. 252-522.00R.
Hanson, Wayne H.; Heyl, Derrick L.; Krause, Bradley D.; Kravik, Richard C.; Lawson, Gerald P.; and Schueler, Jerry L., to Winona Tool Manufacturing Company. Cleaning machine. 4,383,542, Cl. 134-105.000.
Haon, Pierre: *See*—
Ottenheimer, Philippe; and Haon, Pierre, 4,383,661, Cl. 244-3.140.
Hara, Kazuo: *See*—
Nakamura, Hiroyuki; Shikata, Makoto; Ohgami, Masaaki; and Hara, Kazuo, 4,383,510, Cl. 123-352.000.
Harada, Kunihiro: *See*—
Hosaka, Yoshihiro; Kamoshida, Yoichi; Harita, Yoshiyuki; and Harada, Kunihiro, 4,384,037, Cl. 430-191.000.
Harder, Frederick H.: *See*—
De Meyer, Roy W.; Harder, Frederick H.; Buchholz, Arnold R.; Uecker, Richard P.; and Kressin, John A., 4,383,540, Cl. 133-3.00H.

Harding, Barry; Miles, George W.; and Cowan, Barry J., to W.A. Tyzack & Company Limited. Knives for food slicing machines. 4,383,871, Cl. 148-12.400.
Harding, Geoffrey: *See*—
Wagner, Wolfgang; and Harding, Geoffrey, 4,384,209, Cl. 378-14.000.
Harita, Yoshiyuki: *See*—
Hosaka, Yoshihiro; Kamoshida, Yoichi; Harita, Yoshiyuki; and Harada, Kunihiro, 4,384,037, Cl. 430-191.000.
Harnisch, Horst: *See*—
Jautelat, Manfred; Arlt, Dieter; Lantzsch, Reinhard; Fuchs, Rainer; Riebel, Hans-Jochem; Schroder, Rolf; and Harnisch, Horst, 4,384,114, Cl. 542-441.000.
Harris, Gerald W.; and Marshall, John K. Furling sail with protective panels. 4,383,492, Cl. 114-103.000.
Harrison, Colin G.: *See*—
Young, Ian R.; and Harrison, Colin G., 4,384,255, Cl. 324-309.000.
Hart, John R.: *See*—
Stackpole, Edward J., 4,384,317, Cl. 362-183.000.
Hartle, Robert J.: *See*—
Ryu, Yumi P.; and Hartle, Robert J., 4,383,931, Cl. 252-32.70E.
Hartmann, Horst; Hochstein, Waldhelm; Kaibel, Gerd; and Mueller, Franz-Josef, to BASF Aktiengesellschaft. Removal of organic iodine compounds from acetaldehyde. 4,383,894, Cl. 203-70.000.
Hartmann, Horst: *See*—
Kaibel, Gerd; Hartmann, Horst; Hochstein, Waldhelm; and Mueller, Franz-Josef, 4,383,893, Cl. 203-35.000.
Harwick, Warren J., to Rexnord Inc. Accumulating conveyor with pneumatic control system. 4,383,605, Cl. 198-781.000.
Hasegawa, Akira: *See*—
Kubo, Masayoshi; Hasegawa, Akira; Sakaguchi, Katsuyoshi; and Fukuda, Shozo, 4,383,808, Cl. 425-47.000.
Hasegawa, Shumpei: *See*—
Otsuka, Kazuo; Narasaka, Shin; and Hasegawa, Shumpei, 4,383,409, Cl. 60-276.000.
Hashimoto, Masashi; Aratani, Matsuhiko; and Sawada, Kozo, to Fujisawa Pharmaceutical Co., Ltd. 4-Substituted-2-oxoazetidine compounds and processes for the preparation thereof. 4,383,945, Cl. 260-239.00A.
Hashimoto, Takao: *See*—
Morita, Minoru; Sato, Shimio; Hashimoto, Takao; and Kitaoka, Yoji, 4,383,911, Cl. 208-10.000.
Hatcher, Charles S.: *See*—
Hagler, Gerald E.; and Hatcher, Charles S., 4,384,098, Cl. 526-348.100.
Hattutori, Yasuhide: *See*—
Shimamoto, Susumu; Ando, Toshinari; Tsuji, Hiroshi; Sato, Takashi; and Hattutori, Yasuhide, 4,384,265, Cl. 335-216.000.
Haudum, Adolf: *See*—
Hirnbock, Rudolf; and Haudum, Adolf, 4,383,701, Cl. 280-610.000.
Hauni-Werke Korber & Co. KG: *See*—
Hinzmann, Alfred, 4,383,435, Cl. 73-37.700.
Hawkins, James M.: *See*—
Trotter, Jimmy R.; Hawkins, James M.; and McConnell, Richard L., 4,384,064, Cl. 524-239.000.
Hayakawa, Masahiro: *See*—
Hirano, Yutaka; Hayakawa, Masahiro; Ashida, Hideo; and Ikuta, Hideki, 4,384,215, Cl. 307-109.000.
Hayakawa, Masao; Maeda, Takamichi; and Oda, Mituwo, to Sharp Kabushiki Kaisha. Method of making a through-hole connector. 4,383,363, Cl. 29-847.000.
Hayakawa, Yoshito, to Yamada Iryo Shomei Kabushiki Kaisha. Photographic flash device for use with a shadowless lamp for surgical operation. 4,384,315, Cl. 362-33.000.
Hayashi, Hiroyuki: *See*—
Takamatsu, Osamu; Ooshima, Hiyoshi; Kaneko, Katsuhiro; Hayashi, Hiroyuki; and Tsuda, Toyomori, 4,383,493, Cl. 114-294.000.
Hayashi, Koichi: *See*—
Meijer, Gerald; Takaoka, Mosayoshi; and Hayashi, Koichi, 4,384,180, Cl. 200-52.00R.
Hayashi, Tomoharu: *See*—
Suzuki, Kiyoaki; Watanabe, Masaru; Yamamoto, Hisashi; Hayashi, Tomoharu; and Miura, Takuji, 4,384,174, Cl. 179-115.50R.
Hayashi, Tsutomu: *See*—
Fujimoto, Hirotsugu; Hayashi, Tsutomu; and Hosono, Tatsukuma, 4,383,448, Cl. 73-637.000.
Hayes, Mark J.: *See*—
Smith, Avery B.; and Hayes, Mark J., 4,383,901, Cl. 204-152.000.
Head, Michael B.: *See*—
Neuman, Werner E.; Head, Michael B.; and Kummel, Marshall L., 4,384,263, Cl. 333-181.000.
Hegarty, William, to Self-Powered Lighting Inc. Self-luminous safety sign. 4,383,382, Cl. 40-545.000.
Heider, John G.: *See*—
Kathawala, Faizulla G.; and Heider, John G., 4,384,124, Cl. 548-495.000.
Hein, Lehmann AG: *See*—
Schmidt, Gerhard, 4,383,919, Cl. 209-399.000.
Heinis, Robert P.: *See*—
Schotter, Richard D.; and Heinis, Robert P., 4,383,460, Cl. 83-886.000.
Heisler, Raymond A. Apparatus for sensing, orientating and delivering cans to subsequent conveyor. 4,383,601, Cl. 198-394.000.
Held, Kurt. Apparatus for sealing inserts between sheets of plastic material. 4,383,882, Cl. 156-552.000.
Heller, Ralph N., to Grovag Grossventiltechnik AG. Seals for ducts. 4,383,693, Cl. 277-204.000.
Hellmann, Heinz-Dieter: *See*—
Becker, Karl-Heinz; Milla, Peter; Hergt, Peter; and Hellmann, Heinz-Dieter, 4,383,800, Cl. 415-219.00C.
Hellwig, Paul; and Schlagheck, Werner, to U.S. Philips Corporation. Electric lamp with a sleeve-shaped cap. 4,384,236, Cl. 313-318.000.
Henning, Hansjuergen H., to Bell Telephone Laboratories, Incorporated. Quadrature modulation arrangement with enhanced dynamic amplification range. 4,384,364, Cl. 455-60.000.
Her Majesty the Queen in right of the Province of Alberta: *See*—
Kizior, Thaddeus E., 4,383,914, Cl. 208-177.000.
Hercules Incorporated: *See*—
Bloothoofd, William; and Hughes, Norman E., 4,383,759, Cl. 355-85.000.
Hergt, Peter: *See*—
Becker, Karl-Heinz; Milla, Peter; Hergt, Peter; and Hellmann, Heinz-Dieter, 4,383,800, Cl. 415-219.00C.
Herisson, Jean-Louis: *See*—
Blaise, Jean; and Herisson, Jean-Louis, 4,384,092, Cl. 526-225.000.
Hermes Precisa International S.A.: *See*—
Costa, Jorge, 4,383,778, Cl. 400-569.000.
Herriau, Jean-Pierre: *See*—
Huignard, Jean-Pierre; Herriau, Jean-Pierre; and Pichon, Laurence, 4,383,734, Cl. 350-162.130.
Herweh, John E.; Garrett, Thomas B.; and Magnusson, Alan B., to Armstrong World Industries, Inc. 3-Substituted-7-dialkylaminospiro(2H-1-benzopyran-2,3'-(3H)-naphtha(2,1-b)pyrans). 4,384,094, Cl. 526-268.000.
Hesoun, Dusan; Vondracek, Bohumir; and Turinova, Jana, to SPOFA, spojene podniky pro zdravotnickou vyrobu. 4-(3-Iodopropargyloxy) pyrimidine derivatives. 4,384,118, Cl. 544-309.000.
Hewlett-Packard Company: *See*—
Dias, J. Fleming, 4,384,228, Cl. 310-313.00D.
LaBarre, Lawrence J.; Oliver, Bernard M.; Tyler, Charles E.; Thompson, Dennis C.; Neukermans, Armand P.; and McManigill, Douglass, 4,384,298, Cl. 346-129.000.
Watson, Robert E.; Walden, Jack M.; and Near, Charles W., 4,384,328, Cl. 364-200.000.
Hewlett-Packard Limited: *See*—
Crawford, Thomas M.; Reynolds, Alastair S.; and Young, Ivan R., 4,384,354, Cl. 375-10.000.
Heyl, Derrick L.: *See*—
Hanson, Wayne H.; Heyl, Derrick L.; Krause, Bradley D.; Kravik, Richard C.; Lawson, Gerald P.; and Schueler, Jerry L., 4,383,542, Cl. 134-105.000.
Hibino, Shinichi; and Nakayama, Keiji, to Sharp Kabushiki Kaisha. DAP Type liquid crystal display with means for obscuring viewing angle related changes in color. 4,383,737, Cl. 350-347.000.
Higashiyama, Kazuhiro; Hosoya, Katsumi; Kadowaki, Shyunichi; and Yano, Tsuneomi, to Nissan Motor Company, Limited. Electronic fuel injection control system for an internal combustion engine. 4,383,515, Cl. 123-489.000.
Hikosaka, Shinichi: *See*—
Aoyama, Toshimi; Kato, Bonpei; Tohda, Hiroyuki; Tachibana, Eiichi; and Hikosaka, Shinichi, 4,384,011, Cl. 427-54.100.
Hill, Edward D. Coconut husk removing tool. 4,383,479, Cl. 99-572.000.
Hiller, Klaus: *See*—
Deter, Christhard; Hiller, Klaus; Laack, Ulrich; Leuschner, Reiner; and Wunderlich, Jorg, 4,383,760, Cl. 356-150.000.
Hiller, Rolf, to Hiller Vertriebs-GmbH fur Fahrzeugteile. Traverse for use in luggage racks of automotive vehicles or the like. 4,383,628, Cl. 224-319.000.
Hiller Vertriebs-GmbH fur Fahrzeugteile: *See*—
Hiller, Rolf, 4,383,628, Cl. 224-319.000.
Hilscher, Eduard; Ott, Karl-Heinz; and von Reppert, Rudiger L., to Hoechst Aktiengesellschaft. Filters. 4,383,925, Cl. 210-708.000.
Hilti, Bruno; and Mayer, Carl W., to Ciba-Geigy Corporation. Metallically conducting 5,6,11,12-tetrathiotetracene-iodine charge-transfer complex and processes for the production thereof. 4,384,025, Cl. 428-411.000.
Hinzmann, Alfred, to Hauni-Werke Korber & Co. KG. Method and apparatus for monitoring the locations of perforations in webs of wrapping material for filter cigarettes or the like. 4,383,435, Cl. 73-37.700.
Hirai, Shinichiro: *See*—
Hussain, Anwar A.; Hirai, Shinichiro; and Bawarshi, Rima, 4,383,993, Cl. 424-239.000.
Hirano, Toshio: *See*—
Saito, Takashi; Mochizuki, Masafumi; and Hirano, Toshio, 4,384,352, Cl. 369-77.000.
Hirano, Yutaka; Hayakawa, Masahiro; Ashida, Hideo; and Ikuta, Hideki, to Fujitsu Limited. Capacitor element. 4,384,215, Cl. 307-109.000.
Hirnbock, Rudolf; and Haudum, Adolf, to Kastle Gesellschaft m.b.H. Ski. 4,383,701, Cl. 280-610.000.
Hirota, Kunio: *See*—
Sugiyama, Akira; and Hirota, Kunio, 4,383,489, Cl. 112-103.000.
Hirota, Yukitsugu: *See*—
Fukuhara, Hiroshige; Hirota, Yukitsugu; and Sone, Masazumi, 4,384,331, Cl. 364-431.120.
Hirsch, Gunter: *See*—
Wendel, Kurt; and Hirsch, Gunter, 4,384,069, Cl. 524-521.000.
Hirt, Dieter: *See*—
Mamberer, Hans E.; and Hirt, Dieter, 4,384,337, Cl. 364-518.000.

Hisamoto, Iwao; Maeda, Chiaki; Omure, Yukio; and Onishi, Takashi, to Daikin Kogyo Co., Ltd. Water removing composition. 4,383,932, Cl. 252-194.000.
Hitachi Chemical Company, Ltd.: *See*—
Komuro, Katsuhiro; Suwa, Masateru; Soeno, Koh; and Ohsawa, Masato, 4,383,970, Cl. 420-528.000.
Hitachi Engineering Co., Ltd.: *See*—
Fujimoto, Hirotsugu; Hayashi, Tsutomu; and Hosono, Tatsukuma, 4,383,448, Cl. 73-637.000.
Hitachi, Ltd.: *See*—
Atago, Takeshi; and Manaka, Toshio, 4,383,506, Cl. 123-179.00G.
Chino, Koichi; Yusa, Hideo; and Kamiya, Kunio, 4,383,888, Cl. 159-49.000.
Fujimoto, Hirotsugu; Hayashi, Tsutomu; and Hosono, Tatsukuma, 4,383,448, Cl. 73-637.000.
Ishikawa, Isao; Kanda, Hiroshi; and Kondo, Toshio, 4,384,231, Cl. 310-335.000.
Komuro, Katsuhiro; Suwa, Masateru; Soeno, Koh; and Ohsawa, Masato, 4,383,970, Cl. 420-528.000.
Matsuda, Yasuo; Honda, Kazuo; and Maeda, Takeo, 4,384,248, Cl. 324-51.000.
Ohta, Masutomi; and Sakai, Minoru, 4,384,304, Cl. 358-147.000.
Suzuki, Takamichi; Sakata, Tomoaki; Sugimoto, Koichi; and Kohno, Michinaga, 4,383,359, Cl. 29-712.000.
Hitachi Metals, Ltd.: *See*—
Yamashita, Keitaro, 4,383,498, Cl. 118-657.000.
Hitachi Shipbuilding & Engineering Co.: *See*—
Takamatsu, Osamu; Ooshima, Hiyoshi; Kaneko, Katsuhiro; Hayashi, Hiroyuki; and Tsuda, Toyomori, 4,383,493, Cl. 114-294.000.
Hitachi Shipbuilding & Engineering Co., Ltd.: *See*—
Inaba, Hideya; and Ichiki, Masayoshi, 4,383,941, Cl. 252-477.00R.
Ho, Guan-Huei; and Liao, Chiang-Chang, to Borden, Inc. Activation of a siliceous carrier for enzyme immobilization. 4,384,045, Cl. 435-176.000.
Hochstein, Waldhelm: *See*—
Hartmann, Horst; Hochstein, Waldhelm; Kaibel, Gerd; and Mueller, Franz-Josef, 4,383,894, Cl. 203-70.000.
Kaibel, Gerd; Hartmann, Horst; Hochstein, Waldhelm; and Mueller, Franz-Josef, 4,383,893, Cl. 203-35.000.
Hocker, Jurgen; Wieder, Wolfgang; Merten, Rudolf; and Witte, Josef, to Bayer Aktiengesellschaft. Process for producing polyacetylene. 4,384,090, Cl. 526-169.200.
Hockman, Mark E. Splitting device. 4,383,562, Cl. 145-2.00R.
Hodges, Michael J., to Detexomat Machinery Limited. Hosiery toe closing machine. 4,383,490, Cl. 112-121.150.
Hodges, Michael J., to Detexomat Machinery Limited. Method and apparatus for hosiery manufacture. 4,383,491, Cl. 112-262.200.
Hoechst Aktiengesellschaft: *See*—
Handte, Reinhard; Bauer, Klaus; and Bieringer, Hermann, 4,383,850, Cl. 71-88.000.
Hilscher, Eduard; Ott, Karl-Heinz; and von Reppert, Rudiger L., 4,383,925, Cl. 210-708.000.
Schornig, Eberhard; and Kuemmerl, Klaus, 4,383,751, Cl. 354-322.000.
Hoesch Werke Aktiengesellschaft: *See*—
Brenke, Manfred; Ihlefeldt, Jurgen; Kopineck, Hermann-Josef; and Tappe, Wilhelm, 4,384,303, Cl. 358-107.000.
Hoffa, Kenneth R. Escape ladder. 4,383,592, Cl. 182-70.000.
Hoffman, John R.: *See*—
Woodruff, Frank; Ferguson, John H., Jr.; and Hoffman, John R., 4,383,647, Cl. 239-265.190.
Hoffmann-La Roche Inc.: *See*—
Bartorelli, Alberto; and Accinni, Roberto, 4,383,985, Cl. 424-1.000.
Pfiffner, Albert, 4,384,116, Cl. 544-178.000.
Hoffmann, Paul, to Dragoco Gerberding und Co. GmbH. Natural edible dye preparation from bean husks giving red shades. 4,383,833, Cl. 8-438.000.
Hoffmuller, Wilhelm, to Motoren-und Turbinen-Union Munchen GmbH. Capsule for use in hot isostatic pressing of workpieces. 4,383,809, Cl. 425-78.000.
Hoie, Karl H. Collapsible, portable, open-top container for liquid, preferably. 4,383,564, Cl. 150-0.500.
Holiday Inns, Inc.: *See*—
Ronan, Thomas O., 4,383,709, Cl. 292-346.000.
Holman, Charles O.: *See*—
Siegel, Leon S.; and Holman, Charles O., 4,383,445, Cl. 73-304.00C.
Holmes, Arthur S.: *See*—
Ryan, James M.; and Holmes, Arthur S., 4,383,841, Cl. 62-17.000.
Holzer, Walter. Circulator pump for conveying a liquid and/or gaseous medium. 4,383,418, Cl. 62-235.100.
Honda Giken Kogyo Kabushiki Kaisha: *See*—
Irimajiri, Shoichiro; and Fukui, Takeo, 4,383,508, Cl. 123-193.00P.
Honda, Harushisa; and Toyono, Tsutomu, to Canon Kabushiki Kaisha. Copying apparatus. 4,383,758, Cl. 355-68.000.
Honda, Kazuo: *See*—
Matsuda, Yasuo; Honda, Kazuo; and Maeda, Takeo, 4,384,248, Cl. 324-51.000.
Honda, Minoru: *See*—
Matsuda, Toshiro; and Honda, Minoru, 4,384,330, Cl. 364-426.000.
Honda Motor Co., Ltd.: *See*—
Otsuka, Kazuo; Narasaka, Shin; and Hasegawa, Shumpei, 4,383,409, Cl. 60-276.000.
Honda, Tetsuro; Sato, Motoyuki; and Itagaki, Toyoo, to Mitsubishi Steel Mfg. Co., Ltd. Tandem axle suspension assembly. 4,383,703, Cl. 280-682.000.
Honeywell Inc.: *See*—
Stauffer, Norman L., 4,384,210, Cl. 250-550.000.
Honeywell Information Systems Inc.: *See*—
Bruce, Kenneth E.; Lombardo, Ralph M., Jr.; Tarbox, Bruce H.; and Conway, John W., 4,384,322, Cl. 364-200.000.
Conway, John W.; Bradley, John J.; Bruce, Kenneth E.; Lombardo, Ralph M., Jr.; and Tarbox, Bruce H., 4,384,327, Cl. 364-200.000.
Long, Nicholas R.; Ryan, Joseph L.; Stafford, John P.; and Watkins, Richard R., 4,384,285, Cl. 340-723.000.
Morganti, Victor M.; Negi, Virendra S.; and Graemer, Michael J. D., 4,384,343, Cl. 364-900.000.
Tague, Steven A.; and Negi, Virendra S., 4,384,340, Cl. 364-736.000.
Tague, Steven A.; and Negi, Virendra S., 4,384,341, Cl. 364-763.000.
Hooper, Craig L.: *See*—
Gutberlet, L. Charles; Bertolacini, Ralph J.; Kozinski, Allen A.; and Hooper, Craig L., 4,383,916, Cl. 208-189.000.
Hopkins, Brian M.: *See*—
van der Haar, Rijk; Hopkins, Brian M.; and van Hattem, Jan C., 4,383,537, Cl. 131-280.000.
Hopper, Steven P.: *See*—
Kanner, Bernard; and Hopper, Steven P., 4,384,131, Cl. 556-422.000.
Hori, Akio: *See*—
Nakamura, Kisaku; Jimi, Eiji; Goto, Haruyuki; and Hori, Akio, 4,383,886, Cl. 156-659.100.
Horie, Yoshihiro: *See*—
Hanamoto, Hiroyuki; and Horie, Yoshihiro, 4,383,756, Cl. 355-14.0CU.
Horling, Peter: *See*—
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; Kunkel, Heinrich; Dobhan, Herbert; Horling, Peter; and Klupfel, Norbert, 4,383,670, Cl. 249-60.000.
Hornburg, Klaus, to Krone GmbH. Device for switching on and off and adjusting the volume of communications equipment, such as transceivers. 4,384,260, Cl. 330-129.000.
Horner, Patrick J., to Imperial Chemical Industries PLC. Polyester compositions, shaped articles obtained from them and processes for preparing them. 4,384,105, Cl. 528-128.000.
Hosaka, Yoshihiro; Kamoshida, Yoichi; Harita, Yoshiyuki; and Harada, Kunihiro, to Japan Synthetic Rubber Co., Ltd. Positive type photosensitive resin composition. 4,384,037, Cl. 430-191.000.
Hoshi, Toshiharu: *See*—
Sata, Tekeo; Takamura, Masayuki; Yamagishi, Tomoo; Hoshi, Toshiharu; and Iijima, Kenzaburo, 4,383,856, Cl. 419-6.000.
Hoshina, Kenji: *See*—
Oba, Takeo; Bannai, Kiyoshi; Tanaka, Toshio; Watanabe, Kenzo; Naruchi, Tatsuyuki; Komoriya, Keiji; Kurozumi, Seizi; and Hoshina, Kenji, 4,383,996, Cl. 424-251.000.
Hosiden Electronics Co. Ltd.: *See*—
Kakuta, Toshio, 4,384,177, Cl. 200-5.00R.
Hosoda, Yutaka: *See*—
Ohashi, Koji; Hosoda, Yutaka; and Kitamura, Toshio, 4,383,963, Cl. 264-235.000.
Hosono, Tatsukuma: *See*—
Fujimoto, Hirotsugu; Hayashi, Tsutomu; and Hosono, Tatsukuma, 4,383,448, Cl. 73-637.000.
Hosoya, Katsumi: *See*—
Higashiyama, Kazuhiro; Hosoya, Katsumi; Kadowaki, Shyunichi; and Yano, Tsuneomi, 4,383,515, Cl. 123-489.000.
Hough, Harold L.: *See*—
Blaisdell, Ronald G.; Hough, Harold L.; and Kowalski, C. Edward, 4,384,319, Cl. 362-296.000.
Houghton, Timothy J. Tires. 4,383,566, Cl. 152-158.000.
Houston, Herbert J.: *See*—
Nigol, Olaf; and Houston, Herbert J., 4,384,166, Cl. 174-42.000.
Hovey, Richard J.: *See*—
Croft, George T.; and Hovey, Richard J., 4,383,956, Cl. 264-49.000.
Hovstadius, Gunnar, to Alfa-Laval AB. Arrangement for removing liquid from a rotating housing. 4,383,639, Cl. 494-43.000.
Howmedica, Inc.: *See*—
Asnis, Stanley E.; and Borzone, Rocco R., 4,383,527, Cl. 128-92.0EB.
Hoxsie, Nein T.; and Whitesell, Eric J. Clock escapement monitor. 4,383,432, Cl. 73-6.000.
Huang, Tracy J., to Mobil Oil Corporation. Heterogeneous isoparaffin-/olefin alkylation. 4,384,161, Cl. 585-722.000.
Huebl, Julius; and Eichinger, Johann, to Carl Hurth Maschinen-und Zahnradfabrik. Apparatus for the independent rotation of an aggregate about two axes which are positioned perpendicularly to one another. 4,383,520, Cl. 126-424.000.
Hughes, Norman E.: *See*—
Bloothoofd, William; and Hughes, Norman E., 4,383,759, Cl. 355-85.000.
Huignard, Jean-Pierre; Herriau, Jean-Pierre; and Pichon, Laurence, to Thomson-CSF. Real-time optical correlation system. 4,383,734, Cl. 350-162.130.
Huisman, Hendrikus F.; and deBres, Johannes G. C. M., to U.S. Philips Corporation. Method of manufacturing a magnetic recording element. 4,384,012, Cl. 427-130.000.
Hull, Donald A. Mobile foam brush washing system including mixing apparatus for foam generation. 4,383,935, Cl. 252-349.00E.

Hundermark, David L.: *See*—
Reed, Samuel F.; and Hundermark, David L., 4,384,095, Cl. 526-293.000.

Hunter, James B., to Johnson Matthey, Inc. Hydrogen storage system. 4,383,606, Cl. 206-0.700.

Hurther, Ernest: *See*—
Meneghin, Rene; and Hurther, Ernest, 4,383,621, Cl. 220-273.000.

Hussain, Anwar A.; Hirai, Shinichiro; and Bawarshi, Rima, to University of Kentucky Research Foundation. Nasal dosage forms containing natural female sex hormones. 4,383,993, Cl. 424-239.000.

Hutchings, Thomas J.; Grant, David C., Jr.; and Babcock, Gary D., to Litton Systems, Inc. Controllable mirrors. 4,383,763, Cl. 356-350.000.

Hutson, Thomas, Jr.; Makovec, Donald J.; and Beckworth, Alden E., to Phillips Petroleum Company. Catalytic alkylation apparatus with hydrocarbon recycle. 4,383,977, Cl. 422-235.000.

Huxford, Paul M. Agricultural implements. 4,383,580, Cl. 172-21.000.

Hychalk, Leonard V., to Figgie International Inc. Vehicle outrigger support system. 4,383,617, Cl. 212-189.000.

Hyde, James A.; Breslin, Michael D.; Cosper, David R.; and Kaplan, Roy I., to Nalco Chemical Company. Pulp refining process and additive therefor. 4,383,889, Cl. 162-26.000.

ICD Corporation: *See*—
Suimon, Yoshio, 4,383,388, Cl. 46-254.000.

Ichiki, Masayoshi: *See*—
Inaba, Hideya; and Ichiki, Masayoshi, 4,383,941, Cl. 252-477.00R.

Ichiyama, Toshio: *See*—
Shimotori, Kazuhiro; Ichiyama, Toshio; and Tobita, Yooichi, 4,384,218, Cl. 307-304.000.

Ide, Yoshiaki; and Buckley, Alan, to Celanese Corporation. Mutiaxially oriented high performance laminates comprised of uniaxially oriented sheets of thermotropic liquid crystal polymers. 4,384,016, Cl. 428-1.000.

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Okada, Yoshio; Igarashi, Yuriko; and Okubo, Kimio, 4,383,705, Cl. 282-27.500.
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Araki, Shingo; and Igase, Tsutomu, 4,384,060, Cl. 524-101.000.

Ihlefeldt, Jurgen: *See*—
Brenke, Manfred; Ihlefeldt, Jurgen; Kopineck, Hermann-Josef; and Tappe, Wilhelm, 4,384,303, Cl. 358-107.000.

Iijima, Kenzaburo: *See*—
Sata, Tekeo; Takamura, Masayuki; Yamagishi, Tomoo; Hoshi, Toshiharu; and Iijima, Kenzaburo, 4,383,856, Cl. 419-6.000.

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Ikeguchi, Nobuyuki: *See*—
Ayano, Satoshi; Gaku, Morio; Ikeguchi, Nobuyuki; Kinbara, Hidenori; and Osaki, Yasunari, 4,383,903, Cl. 204-159.160.

Ikuta, Hideki: *See*—
Hirano, Yutaka; Hayakawa, Masahiro; Ashida, Hideo; and Ikuta, Hideki, 4,384,215, Cl. 307-109.000.

Imam, Imdad, to General Electric Company. Hydraulic actuator for an electric circuit breaker. 4,384,182, Cl. 200-82.00B.

Imbeninato, Paul A.; and Wolff, Richard H., to Bendix Corporation, The. Transfer mechanism for a gyroscopic device. 4,383,452, Cl. 74-5.470.

Immulok, Inc.: *See*—
Kledzik, Gary S.; Wilson, Glenn A.; and Mahone, Mark D., 4,384,193, Cl. 219-521.000.

Imperial Chemical Industries Limited: *See*—
Cartwright, David; Salmon, Roger; and Williams, Alfred G., 4,384,135, Cl. 562-435.000.
Mitchell, Douglas L.; and Lansbury, Robert C., 4,384,024, Cl. 428-349.000.

Imperial Chemical Industries PLC: *See*—
Horner, Patrick J., 4,384,105, Cl. 528-128.000.
Pinto, Alwyn, 4,383,982, Cl. 423-359.000.

Imperial Clevite Inc.: *See*—
Maldavs, Ojars, 4,383,549, Cl. 137-514.700.

Imperial Oil Ltd.: *See*—
Kizior, Thaddeus E., 4,383,914, Cl. 208-177.000.

Imura, Takao; Koyanagi, Shigeru; and Joda, Yoshihiro, to Panafacom Limited. System for reducing access time to plural memory modules using five present-fetch and one prefetch address registers. 4,384,342, Cl. 364-900.000.

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Incledon, Stephen H.; and Wilkinson, Bruce L., to Pioneer Magnetics, Inc. Push-pull switching mode inverter-type power supply. 4,384,320, Cl. 363-25.000.

Industrie-Werke Karlsruhe Augsburg Aktiengesellschaft: *See*—
Kaustrater, Gert, 4,383,473, Cl. 89-40.00K.

Ingebrigtsen, Janis: *See*—
Seeney, Charles E.; Kraemer, John F.; and Ingebrigtsen, Janis, 4,383,861, Cl. 106-38.300.

Ingram, Charles E., to Four Star Corporation. Luggage rack locking device. 4,383,627, Cl. 224-315.000.

Inman, Frank S., to Thiokol Corporation. Extendible thrust nozzle for rockets. 4,383,407, Cl. 60-271.000.

Inoue, Takeshi; and Takahashi, Sadayuki, to Nippon Electric Co., Ltd. Temperature compensated piezoelectric ceramic resonator unit. 4,384,229, Cl. 310-315.000.

Inoue, Yoshio: *See*—
Takamizawa, Minoru; Kimura, Shigeo; Somezawa, Masashi; Kobayashi, Kunio; Inoue, Yoshio; and Yoshioka, Hiroshi, 4,384,100, Cl. 528-41.000.

Institut Francais du Petrole: *See*—
Audibert, Francois; Trambourze, Pierre; and Van Landeghem, Hugo, deceased, 4,384,151, Cl. 585-241.000.

Integrated Switching Supplies, Inc.: *See*—
Crick, Robert G.; Dewey, Michael J.; and Jamison, Larry P., 4,384,214, Cl. 307-66.000.

Inteq, Inc.: *See*—
Kuzmik, Paul T.; and Cotta, Leo J., 4,384,307, Cl. 358-257.000.

International Business Machines Corporation: *See*—
Eskew, Douglas H.; Marowski, Raymond M.; and Sevy, Danny R., 4,383,777, Cl. 400-314.600.
Moore, Michael T.; Olson, John M.; and Stremel, Donald A., 4,383,859, Cl. 106-22.000.
Pricer, Wilbur D., 4,384,216, Cl. 307-270.000.
Richard, Maurice E.; and Rinkleib, Helfried O., 4,383,660, Cl. 242-197.000.
Rosenbaum, Walter S.; and Tannenbaum, Alan R., 4,384,329, Cl. 364-300.000.

International Flavors & Fragrances Inc.: *See*—
Boden, Richard M., 4,384,007, Cl. 426-534.000.

International Minerals & Chemical Corp.: *See*—
Seeney, Charles E.; Kraemer, John F.; and Ingebrigtsen, Janis, 4,383,861, Cl. 106-38.300.

International Road Dynamics Inc.: *See*—
Dyck, George J., 4,383,584, Cl. 177-208.000.

International Standard Elektrik Corp.: *See*—
Dalgoutte, David G.; Burke, Peter F. C.; Archer, John D.; and Pragnell, Robert G., 4,383,732, Cl. 350-96.200.

Inuzuka, Tsuneki; Ishida, Masato; and Kawatsura, Yoshihiro, to Canon Kabushiki Kaisha. Image formation apparatus. 4,383,753, Cl. 355-8.000.

Irimajiri, Shoichiro; and Fukui, Takeo, to Honda Giken Kogyo Kabushiki Kaisha. Internal combustion engine. 4,383,508, Cl. 123-193.00P.

Ishida, Akira: *See*—
Kitai, Makoto; and Ishida, Akira, 4,383,458, Cl. 83-405.000.

Ishida, Kunio, to Tokico Ltd. Rocking movable chair. 4,383,714, Cl. 297-325.000.

Ishida, Masato: *See*—
Inuzuka, Tsuneki; Ishida, Masato; and Kawatsura, Yoshihiro, 4,383,753, Cl. 355-8.000.

Ishihara, Toshinobu; Yamamoto, Akira; and Taguchi, Kenichi, to Shin-Etsu Chemical Co., Ltd. Method for the preparation of cis-11-hexadecen-1-yne. 4,384,158, Cl. 585-534.000.

Ishikawa, Isao; Kanda, Hiroshi; and Kondo, Toshio, to Hitachi, Ltd. Piezoelectric acoustic transducer with spherical lens. 4,384,231, Cl. 310-335.000.

Ishikawa, Norikatsu; Onaka, Hidemi; Obata, Haruyuki; Tate, Takao; Tanahashi, Toshio; and Hagino, Isamu, to Toyota Jidosha Kogyo Kabushiki Kaisha. Air-fuel ratio control device of an internal combustion engine. 4,383,512, Cl. 123-440.000.

Ishikawa, Yasuhiro: *See*—
Kawakami, Shinji; and Ishikawa, Yasuhiro, 4,384,027, Cl. 428-624.000.

Isolite Babcock Refractories Co., Ltd.: *See*—
Nakagami, Kashiro, 4,384,046, Cl. 501-95.000.

Isome, Yasuo; Minami, Toshio; and Takahashi, Tadahiko, to Asahi Kasei Kogyo Kabushiki Kaisha; and Snia Viscosa S.p.A. Process for producing viscose rayon filament yarn. 4,383,962, Cl. 264-196.000.

Itagaki, Toyoo: *See*—
Honda, Tetsuro; Sato, Motoyuki; and Itagaki, Toyoo, 4,383,703, Cl. 280-682.000.

Ito, Nobuo: *See*—
Kitamura, Nobuyoshi; Ito, Nobuo; and Takeuchi, Koji, 4,384,059, Cl. 524-100.000.

Ito, Tsukasa, to Clarion Company, Ltd. Printing mask for use in printing on a board having a projected portion and manufacturing process therefor. 4,383,482, Cl. 101-127.000.

Itoki Kosakusho Co. Ltd.: *See*—
Takamatsu, Shunicti, 4,383,789, Cl. 414-277.000.

Iwai, Sakuya: *See*—
Matsubara, Saburo; and Iwai, Sakuya, 4,384,080, Cl. 525-338.000.

Iwaki, Yoshiyuki; and Goto, Hitoshi, to Mitsubishi Denki Kabushiki Kaisha. Charging generator for motor vehicle. 4,384,225, Cl. 310-88.000.

Iwashita, Tomonori; and Fukahori, Hidehiko, to Canon Kabushiki Kaisha. Drive control device in camera. 4,383,750, Cl. 354-271.000.

Iyengar, Doreswamy R., to BASF Wyandotte Corporation. Soft textured high strength alkali blue pigment. 4,383,865, Cl. 106-308.00N.

Iyengar, Rama, to Western Electric Company, Inc. Methods of and apparatus for heating a preform from which lightguide fiber is drawn. 4,383,843, Cl. 65-2.000.

J. H. Fenner & Co. Ltd.: *See*—
Potter, Charles W., 4,383,691, Cl. 277-134.000.

J. I. Case Company: *See*—
Wirsbinski, James L., 4,383,381, Cl. 37-283.000.

Jackel, Johann, to LuK Lamellen und Kupplungsbau GmbH. Centrifugal-force friction clutch with a torque transmission dependent on speed. 4,383,596, Cl. 192-3.310.

Jackson, Dale E.; and Wright, William E., Jr., to Carrier Corporation. Feedback control system for pulsed DC arc welding. 4,384,187, Cl. 219-130.510.

Jacob, Carlyle W. Refrigeration and water condensate removal apparatus. 4,383,415, Cl. 62-81.000.
Jagger, Charles E.: *See*—
deBuda, Rudi; and Jagger, Charles E., 4,384,357, Cl. 375-81.000.
James C. Barber and Associates, Inc.: *See*—
Barber, James C., 4,383,847, Cl. 71-34.000.
James, David R.: *See*—
Crook, Richard W.; Coghill, Ian; and James, David R., 4,384,294, Cl. 343-709.000.
James River-Dixie/Northern, Inc.: *See*—
Pawlowski, Thomas D., 4,383,612, Cl. 206-525.000.
Jamison, Larry P.: *See*—
Crick, Robert G.; Dewey, Michael J.; and Jamison, Larry P., 4,384,214, Cl. 307-66.000.
Jansky, Karl P.: *See*—
Drope, Eckard; Jansky, Karl P.; Pross, Wilhelm; and Breuer, Wolfram, deceased, 4,384,283, Cl. 340-632.000.
Jansoa, Mats O., to Tylo Sauna S.A. Control panel arrangement for an electric sauna heating unit. 4,384,190, Cl. 219-365.000.
Japan Atomic Energy Research Institute: *See*—
Shimamoto, Susumu; Ando, Toshinari; Tsuji, Hiroshi; Sato, Takashi; and Hattutori, Yasuhide, 4,384,265, Cl. 335-216.000.
Japan Synthetic Rubber Co., Ltd.: *See*—
Hosaka, Yoshihiro; Kamoshida, Yoichi; Harita, Yoshiyuki; and Harada, Kunihiro, 4,384,037, Cl. 430-191.000.
Jarosz, John M.: *See*—
Hall, Walter J.; and Jarosz, John M., 4,384,185, Cl. 200-148.00R.
Jarvis, Marvin A.: *See*—
McCurdy, J. L.; and Jarvis, Marvin A., 4,383,972, Cl. 422-131.000.
Jautelat, Manfred; Arlt, Dieter; Lantzsch, Reinhard; Fuchs, Rainer; Riebel, Hans-Jochem; Schroder, Rolf; and Harnisch, Horst, to Bayer Aktiengesellschaft. Styryl substituted Γ-lactone derivatives. 4,384,114, Cl. 542-441.000.
Jemison, William W., Jr.: *See*—
Scott, Paul E.; Willich, George W.; and Jemison, William W., Jr., 4,383,715, Cl. 299-88.000.
Jenkins, Fred W., to Petrolite Corporation. Organo titanium complexes. 4,383,933, Cl. 252-329.000.
Jeol Ltd.: *See*—
Tsuno, Katsushige, 4,384,208, Cl. 250-396.0ML.
Jerden, Ody K. Can crimping and folding device. 4,383,480, Cl. 100-98.00R.
Jetten, Arnold G. M.: *See*—
Goettsch, Reijer; and Jetten, Arnold G. M., 4,384,125, Cl. 548-555.000.
Jido, Morio, to Agency of Industrial Science & Technology; and Ministry of International Trade & Industry. Method for blending by combining fine particles. 4,383,767, Cl. 366-154.000.
Jimi, Eiji: *See*—
Nakamura, Kisaku; Jimi, Eiji; Goto, Haruyuki; and Hori, Akio, 4,383,886, Cl. 156-659.100.
Joda, Yoshihiro: *See*—
Imura, Takao; Koyanagi, Shigeru; and Joda, Yoshihiro, 4,384,342, Cl. 364-900.000.
John Zink Company: *See*—
Reed, Robert D.; Martin, Richard R.; and Goodnight, Hershel E., 4,383,649, Cl. 239-429.000.
Johnson, Conrad B., to Turbo Resources Ltd. Clay contacting process for removing contaminants from waste lubricating oil. 4,383,915, Cl. 208-183.000.
Johnson, Ernest Peter: *See*—
Kizior, Thaddeus E., 4,383,914, Cl. 208-177.000.
Johnson Matthey, Inc.: *See*—
Hunter, James B., 4,383,606, Cl. 206-0.700.
Johnstone, Alexander, to BP Chemicals Limited. Polymerization catalyst. 4,383,939, Cl. 252-429.00B.
Jones, Alan P., to Brandt, Inc. Electronic counting and control means for document handling utilizing plural counters. 4,384,194, Cl. 377-8.000.
Jones, Albert S.: *See*—
Coe, Paul L.; Jones, Albert S.; Noble, Stewart A.; and Walker, Richard T., 4,383,990, Cl. 424-180.000.
Jones, Christopher, to Lucas Industries Limited. Control system. 4,383,511, Cl. 123-359.000.
Jones, Donald W. Dust collector with tubular bag and cage filters and beater rods. 4,383,840, Cl. 55-283.000.
Jones, Ira D. Scope for viewing the internal surface of bores and similar cavities. 4,383,761, Cl. 356-241.000.
Jones, W. Richard, to Mercury Metal Products, Inc. Rain cap with pivot support means. 4,383,478, Cl. 98-59.000.
Jonsson, Goran. Plating apparatus. 4,383,909, Cl. 204-212.000.
Joseph, Stephen H.; Miller, John E.; and Williamson, Lawrie A., to National Research Development Corporation. Method and apparatus for producing multi-layer expanded films. 4,383,968, Cl. 264-503.000.
Jungesjo, Harald N., to Anderson-Cook, Inc. Loader for thin-wall spline rolling machine. 4,383,428, Cl. 72-88.000.
Juso, Hiromi; Tsuji, Shigeki; and Maeda, Shigemi, to Sharp Kabushiki Kaisha. Keyboard operated audio visual system. 4,384,284, Cl. 340-706.000.
Kabushiki Kaisha Aoyama: *See*—
Aoyama, Ryuji, 4,384,021, Cl. 428-193.000.
Kabushiki Kaisha Suwa Seikosha: *See*—
Arai, Kenichiro, 4,383,773, Cl. 400-156.300.
Kabushiki Kaisha Toei Denki Seisakusho: *See*—
Ono, Tadahiro, 4,384,242, Cl. 318-721.000.
Kabushiki Kaisha Tokai Rika Denki Seisakusho: *See*—
Morita, Masayuki; and Nakano, Tasuku, 4,384,270, Cl. 340-73.000.
Kadota, Michio, to Murata Manufacturing Company Ltd. Surface acoustic wave device. 4,384,264, Cl. 333-193.000.
Kadowaki, Shyunichi: *See*—
Higashiyama, Kazuhiro; Hosoya, Katsumi; Kadowaki, Shyunichi; and Yano, Tsuneomi, 4,383,515, Cl. 123-489.000.
Kaganas, Jose, to Sheepskin Autoseat Corporation. Composite seat cover. 4,383,712, Cl. 297-219.000.
Kaibel, Gerd; Hartmann, Horst; Hochstein, Waldhelm; and Mueller, Franz-Josef, to BASF Aktiengesellschaft. Distillative separation of liquid mixtures containing aliphatic alcohols. 4,383,893, Cl. 203-35.000.
Kaibel, Gerd: *See*—
Hartmann, Horst; Hochstein, Waldhelm; Kaibel, Gerd; and Mueller, Franz-Josef, 4,383,894, Cl. 203-70.000.
Kaieda, Shozo: *See*—
Tanaka, Atsuyuki; Kojima, Hiroaki; Kaieda, Shozo; Kakiuchi, Tokuzi; Nishioka, Nobuaki; Tadauchi, Yukio; and Nakagami, Hidekazu, 4,384,272, Cl. 382-50.000.
Kaitsuka, Toshiyuki, to Nippon Telegraph & Tele. Public Corp. Interference compensation system. 4,384,366, Cl. 455-278.000.
Kajita, Kohji: *See*—
Nakayama, Takashi; Kajita, Kohji; and Yamagata, Seiichi, 4,383,403, Cl. 57-207.000.
Kakimoto, Toshihiko, to Nissan Motor Co., Ltd. Damper for suspension of an engine. 4,383,679, Cl. 267-8.00R.
Kakiuchi, Tokuzi: *See*—
Tanaka, Atsuyuki; Kojima, Hiroaki; Kaieda, Shozo; Kakiuchi, Tokuzi; Nishioka, Nobuaki; Tadauchi, Yukio; and Nakagami, Hidekazu, 4,384,272, Cl. 382-50.000.
Kakuta, Toshio, to Hoiden Electronics Co. Ltd. Switch. 4,384,177, Cl. 200-5.00R.
Kamiya, Kunio: *See*—
Chino, Koichi; Yusa, Hideo; and Kamiya, Kunio, 4,383,888, Cl. 159-49.000.
Kammler, Detlef: *See*—
Meier, Heinz; Stricker, Dieter; and Kammler, Detlef, 4,383,772, Cl. 400-55.000.
Kamoshida, Yoichi: *See*—
Hosaka, Yoshihiro; Kamoshida, Yoichi; Harita, Yoshiyuki; and Harada, Kunihiro, 4,384,037, Cl. 430-191.000.
Kan, Kazunori: *See*—
Ohashi, Takehisa; Shimazaki, Masami; Nomura, Kenji; Kan, Kazunori; and Watanabe, Kiyoshi, 4,384,139, Cl. 562-512.000.
Kan, Peter T.: *See*—
McBrayer, Robert L.; Demou, John G.; Kan, Peter T.; and Volz, William E., 4,384,052, Cl. 521-162.000.
Kanaya, Motonori: *See*—
Suzuki, Masane; and Kanaya, Motonori, 4,383,729, Cl. 350-96.100.
Kanda, Hiroshi: *See*—
Ishikawa, Isao; Kanda, Hiroshi; and Kondo, Toshio, 4,384,231, Cl. 310-335.000.
Kane, Vinayak V., to Ortho Pharmaceutical Corporation. Synthesis of deoxyzoapatanol derivatives. 4,384,126, Cl. 549-346.000.
Kanegafuchi Chemical Industry Company, Limited: *See*—
Ohashi, Takehisa; Shimazaki, Masami; Nomura, Kenji; Kan, Kazunori; and Watanabe, Kiyoshi, 4,384,139, Cl. 562-512.000.
Kaneko, Katsuhiro: *See*—
Takamatsu, Osamu; Ooshima, Hiyoshi; Kaneko, Katsuhiro; Hayashi, Hiroyuki; and Tsuda, Toyomori, 4,383,493, Cl. 114-294.000.
Kanner, Bernard; and Hopper, Steven P., to Union Carbide Corporation. Process for the preparation of oximatohydridosilanes and aminoxyhydridosilanes. 4,384,131, Cl. 556-422.000.
Kaplan, Leonard L.: *See*—
Dubash, Darius D.; Kaplan, Leonard L.; and Ziets, George A., 4,383,986, Cl. 424-25.000.
Kaplan, Roy I.: *See*—
Hyde, James A.; Breslin, Michael D.; Cooper, David R.; and Kaplan, Roy I., 4,383,889, Cl. 162-26.000.
Karll, Robert E.; and Lee, Richard J., to Standard Oil Company (Indiana). Process and compositions. 4,384,138, Cl. 562-478.000.
Karol, Meryl H.; and Alarie, Yves C., to University of Pittsburgh. Tolyl isocyanate and toluene diisocyanate test antigens, methods for their preparation and use in detecting diisocyanates and antibodies to diisocyanates. 4,383,984, Cl. 424-1.000.
Kasai, Juichi: *See*—
Numamoto, Yukio; and Kasai, Juichi, 4,383,376, Cl. 34-9.000.
Kasai, Shin: *See*—
Nakazawa, Koji; Sato, Michio; Kasai, Shin; Kawaguchi, Yutaka; and Kikuchi, Toshiaki, 4,383,653, Cl. 242-43.00R.
Kashima, Norio; and Nihei, Fumihiro, to Nippon Telegraph & Telephone Public Corporation. Optical fiber fusion splicing method. 4,383,844, Cl. 65-4.210.
Kassouf, Thomas L.: *See*—
Divers, Raymond T.; Kassouf, Thomas L.; and Circelli, Joan, 4,383,726, Cl. 339-198.00R.
Kastle Gesellschaft m.b.H.: *See*—
Hirnbock, Rudolf; and Haudum, Adolf, 4,383,701, Cl. 280-610.000.
Kastrubin, Eduard M.; and Kordjukov, Jury V. Method of electroanesthesia. 4,383,522, Cl. 128-1.00C.
Kathawala, Faizulla G.; and Heider, John G., to Sandoz, Inc. Cyclopropanyl-bearing amides of tryptophane. 4,384,124, Cl. 548-495.000.
Kato, Bonpei: *See*—
Aoyama, Toshimi; Kato, Bonpei; Tohda, Hiroyuki; Tachibana, Eiichi; and Hikosaka, Shinichi, 4,384,011, Cl. 427-54.100.

Kato, Kichiro: *See*—
Ujihashi, Michiaki; and Kato, Kichiro, 4,383,408, Cl. 60-274.000.
Katona, Joseph W., to Mills Products, Inc. Door frame and handle combination. 4,383,519, Cl. 126-190.000.
Katsuragi, Shigeo: *See*—
Matsumoto, Kunio; Noda, Toshiharu; Fujii, Tadashiro; Watanabe, Susumu; Matsumoto, Kazuhiko; and Katsuragi, Shigeo, 4,384,041, Cl. 435-24.000.
Kaustrater, Gert, to Industrie-Werke Karlsruhe Augsburg Aktiengesellschaft. Apparatus for locking the support of an elevationally aimable weapon. 4,383,473, Cl. 89-40.00K.
Kautz, Jon F., to AMP Incorporated. Connector insertion tool. 4,383,361, Cl. 29-739.000.
Kawabata, Takakazu: *See*—
Hanaoka, Masanori; Kawabata, Takakazu; and Kondo, Tetsuo, 4,383,505, Cl. 123-146.50A.
Kawaguchi, Yutaka: *See*—
Nakazawa, Koji; Sato, Michio; Kasai, Shin; Kawaguchi, Yutaka; and Kikuchi, Toshiaki, 4,383,653, Cl. 242-43.00R.
Kawaharazaki, Takashi: *See*—
Morita, Masayuki; Kawaharazaki, Takashi; and Shimogawa, Toshiaki, 4,383,658, Cl. 242-107.000.
Kawai, Shigetaka, to Mitsubishi Denki Kabushiki Kaisha. Armature winding for a dynamoelectric machine. 4,384,227, Cl. 310-213.000.
Kawakami, Moriatsu, to Laurel Bank Machine Co., Ltd. Magnetic detection device for use in bank note discriminating apparatus. 4,384,197, Cl. 235-485.000.
Kawakami, Shinji; and Ishikawa, Yasuhiro, to Yokohama Rubber Co., Ltd., The. Composites of steel cords and rubber. 4,384,027, Cl. 428-624.000.
Kawamata, Etsuo: *See*—
Matsuno, Mitsuo; Kawamata, Etsuo; Kuroda, Nobuyuki; Matsuura, Kazuo; and Miyoshi, Mitsuji, 4,384,088, Cl. 526-116.000.
Kawamoto, Frank T.: *See*—
Lunquist, Frank C.; and Kawamoto, Frank T., 4,383,648, Cl. 239-419.300.
Kawamura, Masaharau; Uchidoi, Masanori; Shigeta, Yoshihiro; Sugiura, Yoji; and Yamamoto, Hiroshi, to Canon Kabushiki Kaisha. Camera and automatic exposure control therefor for use with various types of flash units. 4,383,745, Cl. 354-149.000.
Kawamura, Shuzo, to Murata Kikai Kabushiki Kaisha. Traverse drum for winding machine. 4,383,654, Cl. 242-43.200.
Kawatsura, Yoshihiro: *See*—
Inuzuka, Tsuneki; Ishida, Masato; and Kawatsura, Yoshihiro, 4,383,753, Cl. 355-8.000.
Kayser-Thredе GmbH: *See*—
Burkert, Peter, 4,383,762, Cl. 356-346.000.
Kazmiroski, Michael S.; and Latshaw, Wilmer E., to Menley & James Laboratories, Ltd. Contraceptive suppository. 4,384,003, Cl. 424-341.000.
Kebbel, Waldemar S.: *See*—
Geurtsen, Friedrich H. H.; Kebbel, Waldemar S.; and Meyer, Manfred, 4,383,880, Cl. 156-361.000.
Keeling, Michael R.: *See*—
Lewis, John D.; Keeling, Michael R.; Martin, Graham D.; and Pullen, Elaine A., 4,384,295, Cl. 346-75.000.
Kefalas A/S: *See*—
Bregnedal, Peter; and Buus, Jorn L. M., 4,384,140, Cl. 564-56.000.
Kelley, Stephen H.; and Ulmer, Richard W., to Motorola, Inc. Capacitive DAC to filter interface circuit. 4,384,276, Cl. 340-347.0DA.
Kelley, Stephen H.: *See*—
Allgood, Robert N.; and Kelley, Stephen H., 4,384,277, Cl. 340-347.0DA.
Kelsey-Hayes Company: *See*—
Rozmus, Walter J., 4,383,884, Cl. 156-642.000.
Kendall Company, The: *See*—
Marshall, Preston F., 4,383,349, Cl. 19-0.560.
Kenney, Walter J., to United States of America, Energy. Conductor for a fluid-cooled winding. 4,384,168, Cl. 174-126.00S.
Kerkow, Volkmar. Rear baggage carrier or rack. 4,383,629, Cl. 224-329.000.
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Kernforschungszentrum Karlsruhe Gesellschaft mit beschrankter Haftung: *See*—
Ondracek, Gerhard, 4,383,944, Cl. 252-628.000.
Kerr, Russell H., to Deere & Company. Blade fabricating process. 4,383,677, Cl. 266-87.000.
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Khoe, Giok D.; Kock, Hendrikus G.; Kuppers, Dieter; and Lydtin, Hans-Jurgen, to U.S. Philips Corporation. Method of producing integrated optical waveguide circuits and circuits obtained by this method. 4,384,038, Cl. 430-321.000.
Kiang, Nai-Wen, to Schwinn Bicycle Company. Adjustable connection for a bicycle rear carrier. 4,383,625, Cl. 224-39.000.
Kidd, Patrick D.: *See*—
Butler, David V.; Kidd, Patrick D.; and Orlowski, Jan A., 4,383,826, Cl. 433-228.000.
Kidde Consumer Durables Corp.: *See*—
Reibling, Robert L., 4,384,318, Cl. 362-216.000.
Kidde, Inc.: *See*—
Sterner, Russell L.; and Whittingham, Reginald P., 4,383,616, Cl. 212-182.000.
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MacCormack, Alexander A.; and Kieffer, Vernon E., 4,383,439, Cl. 73-116.000.
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Nakazawa, Koji; Sato, Michio; Kasai, Shin; Kawaguchi, Yutaka; and Kikuchi, Toshiaki, 4,383,653, Cl. 242-43.00R.
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Kim, Dongsung R.; and McClintock, John H., Jr., to Burroughs Corporation. Microprogrammed digital data processing system employing tasking at a microinstruction level. 4,384,324, Cl. 364-200.000.
Kim, Leo; and Ash, Stuart G., to Shell Oil Company. Production of microbial polysaccharides. 4,384,044, Cl. 435-101.000.
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Vardi, Isaih; Bourne, Joseph; Ben-Dror, Jonathan; and Kimchi, Yigal, 4,383,424, Cl. 62-476.000.
Kimura, Kazuaki: *See*—
Tamaki, Hiroshi; Ohtomo, Fumio; and Kimura, Kazuaki, 4,384,204, Cl. 250-237.00G.
Kimura, Shigeo: *See*—
Takamizawa, Minoru; Kimura, Shigeo; Somezawa, Masashi; Kobayashi, Kunio; Inoue, Yoshio; and Yoshioka, Hiroshi, 4,384,100, Cl. 528-41.000.
Kimura, Susumu, to Nissan Motor Co., Ltd. Exhaust system of a multicylinder internal combustion engine. 4,383,410, Cl. 60-278.000.
Kinbara, Hidenori: *See*—
Ayano, Satoshi; Gaku, Morio; Ikeguchi, Nobuyuki; Kinbara, Hidenori; and Osaki, Yasunari, 4,383,903, Cl. 204-159.160.
King, Alicia P.: *See*—
Krespan, Carl G.; and King, Alicia P., 4,384,128, Cl. 549-550.000.
King, Charles T.; and Sigmon, Bernard E., to Theta-Com of California. MDS Receiver. 4,384,367, Cl. 455-325.000.
King, Louis J., to Denver Spring Service & Mfg. Co., Inc. Lift mechanism for pickup trucks. 4,383,791, Cl. 414-542.000.
Kinser, Donald L.: *See*—
Aaron, W. Scott; Kinser, Donald L.; and Quinby, Thomas C., 4,383,855, Cl. 419-19.000.
Kiozpeoplou, Diana, to Colgate/Palmolive Company. Foaming dentifrice containing nonionic surface active agent. 4,383,987, Cl. 424-49.000.
Kirchhoff, Christian H., Jr. Golf bag. 4,383,563, Cl. 150-1.50R.
Kishimoto, Kazuo: *See*—
Ohara, Osamu; and Kishimoto, Kazuo, 4,384,076, Cl. 525-67.000.
Kisler, Semyon, to Polaroid Corporation. Continuous-duty brush polarizer. 4,383,752, Cl. 355-3.0CH.
Kitadate, Kenichiro; Tanimoto, Yoshinori; and Mizuguti, Hirosi, to Tokyo Shibaura Denki Kabushiki Kaisha. X-Ray apparatus. 4,384,360, Cl. 378-202.000.
Kitai, Makoto; and Ishida, Akira, to Dainippon Screen Seizo Kabushiki Kaisha. Film cutter. 4,383,458, Cl. 83-405.000.
Kitamura, Nobuyoshi; Ito, Nobuo; and Takeuchi, Koji, to Ajinomoto Company Incorporated. Halogen-containing resin compositions stabilized by methionine derivatives. 4,384,059, Cl. 524-100.000.
Kitamura, Toshio: *See*—
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Kitaoka, Yoji: *See*—
Morita, Minoru; Sato, Shimio; Hashimoto, Takao; and Kitaoka, Yoji, 4,383,911, Cl. 208-10.000.
Kizior, Thaddeus E., to Petro-Canada Exploration Inc.; Her Majesty the Queen in right of the Province of Alberta; Ontario Energy Corp.; Imperial Oil Ltd.; Canada-Cities Service, Ltd.; Gulf Oil Canada Ltd.; and Johnson, Ernest Peter. Dilution centrifuging of bitumen froth from the hot water process for tar sand. 4,383,914, Cl. 208-177.000.
Klauke, Erich: *See*—
Maurer, Fritz; Riebel, Hans-Jochem; Priesnitz, Uwe; and Klauke, Erich, 4,383,949, Cl. 260-465.00G.
Klaus, Siegfried, to Peddinghaus, Rolf. Bending machine. 4,383,430, Cl. 72-387.000.
Kledzik, Gary S.; Wilson, Glenn A.; and Mahone, Mark D., to Immulok, Inc. Incubating device for specimen mounted on glass slides in immunoassays. 4,384,193, Cl. 219-521.000.
Klee, Maurice M. Automatic telephone silencer. 4,384,171, Cl. 179-84.00C.
Klein-Schanzlin & Becker Aktiengesellschaft: *See*—
Becker, Karl-Heinz; Milla, Peter; Hergt, Peter; and Hellmann, Heinz-Dieter, 4,383,800, Cl. 415-219.00C.
Kleinschmit, Peter: *See*—
Schwarz, Rudolf; Kleinschmit, Peter; Liedtke, Christa; and Wolff, Siegfried, 4,384,132, Cl. 556-427.000.
Kleinschmitt, David, to Pitney Bowes Inc. Multi-bounce, folded path scanning system. 4,383,754, Cl. 355-8.000.
Klimpel, Richard R.: *See*—
Bermudez, Mauricio; Klimpel, Richard R.; and Sands, Steven D., 4,384,010, Cl. 426-618.000.
Kline, Richard H., to General Motors Corporation. Preformed flex-rib battery case. 4,384,031, Cl. 429-176.000.
Kling, Georg. Apparatus for transferring coils or bundles of rod or wire. 4,383,559, Cl. 140-92.200.
Klotz, Erhard: *See*—
Weiss, Hermann; Klotz, Erhard; Tiemens, Ulf; Linde, Rolf; and Mauser, Wilfried, 4,383,733, Cl. 350-130.000.

Klupfel, Norbert: *See*—
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; Kunkel, Heinrich; Dobhan, Herbert; Horling, Peter; and Klupfel, Norbert, 4,383,670, Cl. 249-60.000.

Knaack, Howard L.; and Weger, Kenneth F., Jr., to Knaack Manufacturing Company. Storage box closure control. 4,383,721, Cl. 312-319.000.

Knaack Manufacturing Company: *See*—
Knaack, Howard L.; and Weger, Kenneth F., Jr., 4,383,721, Cl. 312-319.000.

Knickerbocker, Robert H.; and Pohl, Karl-Heinz, to Siemon Company, The. Telephone equipment distribution panel stand. 4,384,172, Cl. 179-98.000.

Knogo Corporation: *See*—
Cooper, Michael N., 4,384,281, Cl. 340-572.000.

Kobayashi, Akio: *See*—
Ohya, Masaki; Kobayashi, Akio; Ogiwara, Takeo; and Satake, Yoshikatsu, 4,384,078, Cl. 525-296.000.

Kobayashi, Kunio: *See*—
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Kobe Steel, Limited: *See*—
Tuda, Goro; and Mizuguchi, Osamu, 4,383,455, Cl. 74-469.000.

Koch Process Systems, Inc.: *See*—
O'Brien, John V., 4,383,842, Cl. 62-20.000.
Ryan, James M.; and Holmes, Arthur S., 4,383,841, Cl. 62-17.000.

Kock, Hendrikus G.: *See*—
Khoe, Giok D.; Kock, Hendrikus G.; Kuppers, Dieter; and Lydtin, Hans-Jurgen, 4,384,038, Cl. 430-321.000.

Koehring Company: *See*—
Spitler, Clem; and Farkas, Ralph, 4,384,224, Cl. 310-81.000.

Koepke, Gunther; Frenken, Hans; Bussmann, Heinrich; and Browatzki, Kurt, to Agfa-Gevaert AG. Process and an apparatus for simultaneously coating several layers to moving objects, particularly webs. 4,384,015, Cl. 427-402.000.

Kohner, Frank: *See*—
Kohner, Michael; Kohner, Frank; and Stubbmann, Albert, 4,383,689, Cl. 273-145.00R.

Kohner, Michael; Kohner, Frank; and Stubbmann, Albert, to Michael Kohner Corporation. Symbol game method. 4,383,689, Cl. 273-145.00R.

Kohno, Michinaga: *See*—
Suzuki, Takamichi; Sakata, Tomoaki; Sugimoto, Koichi; and Kohno, Michinaga, 4,383,359, Cl. 29-712.000.

Kojima, Hiroaki: *See*—
Tanaka, Atsuyuki; Kojima, Hiroaki; Kaieda, Shozo; Kakiuchi, Tokuzi; Nishioka, Nobuaki; Tadauchi, Yukio; and Nakagami, Hidekazu, 4,384,272, Cl. 382-50.000.

Kolb, Gunter: *See*—
Lobach, Wilfried; Kolb, Gunter; Lehmann, Wolfgang; Cramm, Gunther; Muller, Friedhelm; and Muszik, Janos, 4,384,110, Cl. 528-323.000.
Schmidt, Adolf; Kolb, Gunter; and Clarenz, Werner, 4,384,056, Cl. 523-221.000.

Kolling, Georg: *See*—
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Kolter, Roland K., to Bendix Corporation, The. Cup shaped magnetic pickoff for use with a variable reluctance motion sensing system. 4,384,252, Cl. 324-239.000.

Komoriya, Keiji: *See*—
Oba, Takeo; Bannai, Kiyoshi; Tanaka, Toshio; Watanabe, Kenzo; Naruchi, Tatsuyuki; Komoriya, Keiji; Kurozumi, Seizi; and Hoshina, Kenji, 4,383,996, Cl. 424-251.000.

Komuro, Katsuhiro; Suwa, Masateru; Soeno, Koh; and Ohsawa, Masato, to Hitachi, Ltd.; and Hitachi Chemical Company, Ltd. Process for preparation of graphite-containing aluminum alloys. 4,383,970, Cl. 420-528.000.

Kondo, Tetsuo: *See*—
Hanaoka, Masanori; Kawabata, Takakazu; and Kondo, Tetsuo, 4,383,505, Cl. 123-146.50A.

Kondo, Toshio: *See*—
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Konishiroku Photo Industry Co., Ltd.: *See*—
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Kopineck, Hermann-Josef: *See*—
Brenke, Manfred; Ihlefeldt, Jurgen; Kopineck, Hermann-Josef; and Tappe, Wilhelm, 4,384,303, Cl. 358-107.000.

Kopp, Richard: *See*—
Rasshofer, Werner; Grogler, Gerhard; and Kopp, Richard, 4,384,102, Cl. 528-73.000.

Koppers Company, Inc.: *See*—
Gormley, William T., 4,384,156, Cl. 585-477.000.

Kordesch, Karl; and Gsellmann, Josef, to Varta Batterie Aktiengesellschaft. Rechargeable galvanic element. 4,384,029, Cl. 429-169.000.

Kordjukov, Jury V.: *See*—
Kastrubin, Eduard M.; and Kordjukov, Jury V., 4,383,522, Cl. 128-1.00C.

Korshalla, Joseph D.: *See*—
Martin, John H. E. J.; Labeda, David P.; Korshalla, Joseph D.; Borders, Donald B.; and Testa, Raymond T., 4,384,043, Cl. 435-71.000.

Korte, Siegfried; Neukam, Theo; and Seling, Carlhans, to Bayer Aktiengesellschaft. Process for the production of polymers containing acrylonitrile. 4,384,091, Cl. 526-222.000.

Koumura, Noboru: *See*—
Ogino, Yasuo; Niwa, Yukichi; Ohwada, Mitsutoshi; Tanaka, Kazuo; and Koumura, Noboru, 4,384,199, Cl. 250-204.000.

Kovacs, Zoltan; and Schuler, Roland, to BBC Brown, Boveri & Company, Limited. Solvent-free polyurethane resin mixture. 4,384,101, Cl. 528-73.000.

Kovalerchik, Vulf P.: *See*—
Lyakhevich, Genrikh D.; Sokolovsky, Alexandr E.; Suzansky, Vasily G.; and Kovalerchik, Vulf P., 4,384,150, Cl. 585-241.000.

Kowalski, C. Edward: *See*—
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Kowalski, Ronald C.: *See*—
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Koyanagi, Shigeru: *See*—
Imura, Takao; Koyanagi, Shigeru; and Joda, Yoshihiro, 4,384,342, Cl. 364-900.000.

Kozinski, Allen A.: *See*—
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Kraemer, John F.: *See*—
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Kraftwerk Union Aktiengesellschaft: *See*—
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Krause, Bradley D.: *See*—
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Kravik, Richard C.: *See*—
Hanson, Wayne H.; Heyl, Derrick L.; Krause, Bradley D.; Kravik, Richard C.; Lawson, Gerald P.; and Schueler, Jerry L., 4,383,542, Cl. 134-105.000.

Kreeger, Elsmer W., to Pinckney Molded Plastics, Inc. Three-level stack and nest container. 4,383,611, Cl. 206-505.000.

Krespan, Carl G.; and King, Alicia P., to Du Pont de Nemours, E. I., and Company. Perfluoroglycidyl ethers. 4,384,128, Cl. 549-550.000.

Kressin, John A.: *See*—
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Kretschmer, Frank F., Jr.: *See*—
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Kretz, Carl, to Kretztechnik Gesellschaft m.b.H. Ultrasonic equipement for examinations using section displays. 4,383,447, Cl. 73-626.000.

Kretztechnik Gesellschaft m.b.H.: *See*—
Kretz, Carl, 4,383,447, Cl. 73-626.000.

Kreuttner, Albert, to Carl Zeiss-Stiftung. Mold tooling for the manufacture of thermoplastic parts. 4,383,672, Cl. 249-134.000.

Krone GmbH: *See*—
Hornburg, Klaus, 4,384,260, Cl. 330-129.000.

Krude, Werner, to Uni-Cardan Aktiengesellschaft. Vehicle wheel mounting assembly. 4,383,588, Cl. 180-70.000.

Kruka, Vitold R.; and Esparza, Joe O., to Shell Oil Company. Pipeline gel plug. 4,383,783, Cl. 405-171.000.

Kubler, Hermann: *See*—
Bauer, Karl; Dammann, Peter; Kubler, Hermann; and Lorenz, Hellmut, 4,383,405, Cl. 57-340.000.

Kubo, Masayoshi; Hasegawa, Akira; Sakaguchi, Katsuyoshi; and Fukuda, Shozo, to Mitsubishi Jukogyo Kabushiki Kaisha. Vulcanizing press for manufacturing tires. 4,383,808, Cl. 425-47.000.

Kubo, Yoichiro; Ohishi, Tetsu; and Ohura, Kiyomori, to Nippon Zeon Co., Ltd. Process for production of hydrogenated conjugated diene polymers. 4,384,081, Cl. 525-339.000.

Kuchuk-Yatsenko, Sergei I.: *See*—
Paton, Boris E.; Lebedev, Vladimir K.; Kuchuk-Yatsenko, Sergei I.; Sakharnov, Vasily A.; Galian, Boris A.; Asoiants, Grigory B.; Vorobei, Mikhail F.; and Solodovnikov, Sergei A., 4,383,786, Cl. 409-299.000.

Kuder, James E., to Celanese Corporation. Electrochemical production of vinyl acetate. 4,383,899, Cl. 204-59.00R.

Kuemmerl, Klaus: *See*—
Schornig, Eberhard; and Kuemmerl, Klaus, 4,383,751, Cl. 354-322.000.

Kuhnlein, Hans; Kung, Hans R.; and Molnar, Georg, to Bertrams AG. Process and apparatus for the concentration of an alkaline solution. 4,383,887, Cl. 159-13.00A.

Kulka, Thomas S. Foot supporting strap for hospital bed. 4,383,343, Cl. 5-443.000.

Kumazaki, Hiroshi, to Toshiba Kikai Kabushiki Kaisha. Multiple mold clamping apparatus. 4,383,816, Cl. 425-451.900.

Kummel, Marshall L.: *See*—
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Kung, Hans R.: *See*—
Kuhnlein, Hans; Kung, Hans R.; and Molnar, Georg, 4,383,887, Cl. 159-13.00A.

Kunkel, Heinrich: *See*—
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Kunststoffwerk Karl Egger: *See*—
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Kupka, Dieter. Stirring apparatus. 4,383,768, Cl. 366-279.000.
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Kureha Kagaku Kogyo Kabushiki Kaisha: *See*—
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Okada, Yoshio; Igarashi, Yuriko; and Okubo, Kimio, 4,383,705, Cl. 282-27.500.
Okada, Yoshio; Okubo, Kimio; and Igarashi, Yuriko, 4,383,706, Cl. 282-27.500.
Kuroda, Nobuyuki: *See*—
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Kuzmik, Paul T.; and Cotta, Leo J., to Inteq, Inc. Facsimile communications interface adapter. 4,384,307, Cl. 358-257.000.
Kyowa Hakko Kogyo Co., Ltd.: *See*—
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La Metalli Industriale S.p.A.: *See*—
Ceccacci, Bruno, 4,383,429, Cl. 72-318.000.
Laack, Ulrich: *See*—
Deter, Christhard; Hiller, Klaus; Laack, Ulrich; Leuschner, Reiner; and Wunderlich, Jorg, 4,383,760, Cl. 356-150.000.
LaBarre, Lawrence J.; Oliver, Bernard M.; Tyler, Charles E.; Thompson, Dennis C.; Neukermans, Armand P.; and McManigill, Douglass, to Hewlett Packard Company. Plotter. 4,384,298, Cl. 346-129.000.
Labeda, David P.: *See*—
Martin, John H. E. J.; Labeda, David P.; Korshalla, Joseph D.; Borders, Donald B.; and Testa, Raymond T., 4,384,043, Cl. 435-71.000.
Labelle, Henri M. R. Folding closure. 4,383,569, Cl. 160-116.000.
Labouliere, Elzear R.: *See*—
de Vos, Hendrik A. J.; and Labouliere, Elzear R., 4,384,316, Cl. 362-147.000.
La Conte, Richard J., to Boeing Company, The. Four-bar linkage door hinge. 4,383,347, Cl. 16-380.000.
La Conte, Richard J., to Boeing Company, The. Dual-cam guided four-bar linkage mechanism for an overhead baggage compartment. 4,383,392, Cl. 49-205.000.
La Dow, William R.: *See*—
Giordano, George P.; Almanza, Maximino; Eberts, Allen F.; and La Dow, William R., 4,383,386, Cl. 46-14.000.
La Fever, Clifford E., to United States of America, Army. Weapon charger. 4,383,471, Cl. 89-1.00K.
Lafferty, John J.: *See*—
Bondinell, William E.; Lafferty, John J.; and Zirkle, Charles L., 4,383,999, Cl. 424-266.000.
Lagerstedt, Harry B., to United States of America, Agriculture. Method and apparatus for hot-callusing graft unions. 4,383,390, Cl. 47-6.000.
L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude: *See*—
Contal, Francois; and Maissin, Jacques, 4,383,650, Cl. 241-66.000.
Laitram Corporation, The: *See*—
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Lamberth, Eugene. Locking device for sliding closure unit. 4,383,708, Cl. 292-204.000.
Landry, Archie C., to North American Manufacturing Corp. Firing mechanism for single action firearm. 4,383,383, Cl. 42-67.000.
Lang, Armin, to Zahnradfabrik Friedrichshafen, AG. Rack steering gear. 4,383,587, Cl. 180-148.000.
Langdon, Roger M., to Marconi Company Limited, The. Liquid-level measurement. 4,383,443, Cl. 73-290.0OV.
Langer, Arthur W., Jr., to Exxon Research and Engineering Co. Catalyst system for olefinic polymerization. 4,383,938, Cl. 252-429.00B.
Langlais, Frantz: *See*—
Le Du, Antoine; Langlais, Frantz; Michaud, Christian; and Postel, Michel, 4,383,879, Cl. 156-307.700.
Lanier, Earl W. Method for treatment of various dermatological conditions. 4,384,000, Cl. 424-267.000.
Lanneau, Jacques: *See*—
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Lansbury, Robert C.: *See*—
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Lantz, Andre: *See*—
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Lantz, Lawrence C.: *See*—
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Lantzsch, Reinhard: *See*—
Jautelat, Manfred; Arlt, Dieter; Lantzsch, Reinhard; Fuchs, Rainer; Riebel, Hans-Jochem; Schroder, Rolf; and Harnisch, Horst, 4,384,114, Cl. 542-441.000.
Lapeyre, James M., to Laitram Corporation, The. Apparatus for storing the energy of ocean waves. 4,384,212, Cl. 290-53.000.
Laprade, Gerard; Marouby, Jean-Pierre; and Bertin, Charly, to Essilor International, Cie Generale d'Optique. Dummy lens for molded-to-shape eyeglass frame fronts and molds therefor. 4,383,673, Cl. 249-142.000.
Larsen, Einar V.; Baker, Daniel H.; and Bowler, Colin E. J., to General Electric Company. Series-thyristor subsynchronous damper for power generators. 4,384,246, Cl. 322-58.000.
Larsen, Eric R.; and Ecker, Ernest L., to Dow Chemical Company, The. Unsaturated polyesters prepared from a dicarboxylic acid and dibromoneopentyl glycol. 4,384,109, Cl. 528-274.000.
Larson, Richard I.; and Brassfield, Henry C., to General Electric Company. Method of improving the green strength of nuclear fuel pellets. 4,383,953, Cl. 264-0.500.
La See, Jack. Bow fishing reel. 4,383,516, Cl. 124-88.000.
Latshaw, Wilmer E.: *See*—
Kazmiroski, Michael S.; and Latshaw, Wilmer E., 4,384,003, Cl. 424-341.000.
Laurel Bank Machine Co., Ltd.: *See*—
Kawakami, Moriatsu, 4,384,197, Cl. 235-485.000.
Uchida, Isamu, 4,383,541, Cl. 133-8.00A.
Lavalerie, Claude; and Borrel, Christian, to Framatome. Drying unit for a steam generator especially in nuclear reactors. 4,383,500, Cl. 122-491.000.
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McGee, Arthur L., to Coe Manufacturing Company, The. Lathe charger having directionally limited adjustment of scanning spindles. 4,383,560, Cl. 144-209.00A.

McMahon, Thomas F.: *See—*
Fedder, Richard C.; Schafner, George C.; Robson, Thomas; and McMahon, Thomas F., 4,383,755, Cl. 355-11.000.

McManigill, Douglass: *See*—
LaBarre, Lawrence J.; Oliver, Bernard M.; Tyler, Charles E.; Thompson, Dennis C.; Neukermans, Armand P.; and McManigill, Douglass, 4,384,298, Cl. 346-129.000.

McMurtry, David R., to Renishaw Electrical Limited. Numerically controlled machine tool. 4,384,332, Cl. 364-474.000.

McNeil, Michael, to DMA Systems Corporation. Method for cleaning the disc surface and the head support structure in a magnetic disc drive. 4,384,311, Cl. 360-128.000.

McQuillin, John D. R.: *See*—
Collins, Alan J.; and McQuillin, John D. R., 4,384,346, Cl. 365-189.000.

McSweeney, Daniel R., to General Foods Corporation. Non-friable, readily-soluble, compressed tablets and process for preparing same. 4,384,005, Cl. 426-250.000.

Mead, Lewis S.; and Merritt, James K. Method and apparatus for positioning grapevine shoots. 4,383,400, Cl. 56-233.000.

Medard, Paul: *See*—
Bouverot, Noel; Medard, Paul; and Viale, Alain, 4,384,068, Cl. 524-493.000.

Medina, Alvaro. Cable testing apparatus and method. 4,384,249, Cl. 324-51.000.

Medrano, Alfred: *See*—
Wilger, John F.; Nakano, Gregory S.; Orillo, Stephen, Jr.; Medrano, Alfred; Sears, Billy D.; and Uyetake, Tadao, 4,383,395, Cl. 51-245.000.

Medtronic, Inc.: *See*—
Dickhudt, Eugene A., 4,383,532, Cl. 128-419.00P.

Meehan, Ralph J.: *See*—
Masel, Marvin; Meehan, Ralph J.; and Schroeder, Joris, 4,384,275, Cl. 340-347.00P.

Meier, Heinz; Stricker, Dieter; and Kammler, Detlef, to Triumph-Adler A.G. fur Buro- und Informationstechnik. Support for the paper carrier in typewriters and similar machines. 4,383,772, Cl. 400-55.000.

Meijer, Gerald; Takaoka, Mosayoshi; and Hayashi, Koichi, to U.S. Philips Corporation. Electric shaver having plural switch assembly and illuminated counter mechanism. 4,384,180, Cl. 200-52.00R.

Meister, John J.: *See*—
McDaniel, Max P.; and Meister, John J., 4,384,086, Cl. 526-106.000.

Meneghin, Rene; and Hurther, Ernest, to Cebal. Pull tab for an easy opening can. 4,383,621, Cl. 220-273.000.

Menley & James Laboratories, Ltd.: *See*—
Kazmiroski, Michael S.; and Latshaw, Wilmer E., 4,384,003, Cl. 424-341.000.

Mensch, Fritz: *See*—
Handrick, Kurt; Kolling, Georg; and Mensch, Fritz, 4,384,152, Cl. 585-320.000.

Merck & Co., Inc.: *See*—
Christensen, Burton G.; Ratcliffe, Ronald W.; and Salzmann, Thomas N., 4,383,946, Cl. 260-245.20T.

Mercury Metal Products, Inc.: *See*—
Jones, W. Richard, 4,383,478, Cl. 98-59.000.

Merger, Franz; and Fouquet, Gerd, to BASF Aktiengesellschaft. Preparation of pyridines. 4,384,120, Cl. 546-251.000.

Merriman, Horace B., to Mobil Oil Corporation. Flexible pipe. 4,383,554, Cl. 138-101.000.

Merritt, James K.: *See*—
Mead, Lewis S.; and Merritt, James K., 4,383,400, Cl. 56-233.000.

Merten, Helmut L.; and Wilder, Gene R., to Monsanto Company. Production of cyclohexylamine. 4,384,142, Cl. 564-450.000.

Merten, Rudolf: *See*—
Hocker, Jurgen; Wieder, Wolfgang; Merten, Rudolf; and Witte, Josef, 4,384,090, Cl. 526-169.200.
Zecher, Wilfried; and Merten, Rudolf, 4,384,122, Cl. 548-307.000.

Meshoulam, Uriel. Remote controlled sound muting device. 4,384,183, Cl. 200-82.00R.

Metter, Ronald G., to TRW Inc. Alternator voltage regulator. 4,384,245, Cl. 322-28.000.

Metzigian, Michael J. Egg slicer with interchangeable components. 4,383,365, Cl. 30-114.000.

Meyer, Hans R., to Ciba-Geigy Corporation. Cationic fluorescent whitening agents. 4,384,121, Cl. 548-217.000.

Meyer, Manfred: *See*—
Geurtsen, Friedrich H. H.; Kebbel, Waldemar S.; and Meyer, Manfred, 4,383,880, Cl. 156-361.000.

Michael Huber Munchen GmbH: *See*—
Uhlemayr, Albert; and Traitteur, Heinrich, 4,383,860, Cl. 106-27.000.

Michael, Jugen: *See*—
Freytag, Oskar; Bleyer, Rainer; Geyenot, Volker; Fleischer, Gerd; and Michael, Jugen, 4,383,771, Cl. 384-121.000.

Michael Kohner Corporation: *See*—
Kohner, Michael; Kohner, Frank; and Stubbmann, Albert, 4,383,689, Cl. 273-145.00R.

Michaud, Christian: *See*—
Le Du, Antoine; Langlais, Frantz; Michaud, Christian; and Postel, Michel, 4,383,879, Cl. 156-307.700.

Michigan Technological University, Board of Control of: *See*—
Haataja, Bruce A., 4,384,019, Cl. 428-106.000.

Micke, Sigma, to Lucas Industries Limited. Hydraulically and mechanically operable disc brakes. 4,383,593, Cl. 188-71.400.

Mickowski, John. Stress monitoring system. 4,383,449, Cl. 73-764.000.

Microdot Inc.: *See*—
Booden, Wayne R., 4,384,181, Cl. 200-61.760.

Micron Industries Corporation: *See*—
Davenport, Donald A., 4,384,239, Cl. 315-282.000.

Mielnicki, Joseph, to Alco Foodservice Equipment Company. Potato scoop. 4,383,367, Cl. 30-279.00R.

Miike, Akira; Shimizu, Yoshiaki; Tatano, Toshio; and Watanabe, Katsuyuki, to Kyowa Hakko Kogyo Co., Ltd. Method and test composition for determination of hydrogen peroxide. 4,384,042, Cl. 435-25.000.

Mikhailovich, Biletsky, S.: *See*—
Evgenievich, Paton B.; Mikhailovich, Biletsky, S.; Fedorovich, Tereschenko A.; and Pavlovich, Barvinko J., 4,383,556, Cl. 138-172.000.

Mikome, Koichi, to Fujitsu Limited. Read-only memory device. 4,384,345, Cl. 365-104.000.

Miles, George W.: *See*—
Harding, Barry; Miles, George W.; and Cowan, Barry J., 4,383,871, Cl. 148-12.400.

Milianowicz, Stanislaw A., to Westinghouse Electric Corp. Stiff flexible connector for a circuit breaker or other electrical apparatus. 4,384,179, Cl. 200-50.0AA.

Milla, Peter: *See*—
Becker, Karl-Heinz; Milla, Peter; Hergt, Peter; and Hellmann, Heinz-Dieter, 4,383,800, Cl. 415-219.00C.

Miller, Daniel A., to Nestier Corporation. Clip for releasably locking rails to supports. 4,383,614, Cl. 211-49.00D.

Miller, Daniel C. Bidet adaptor for toilet. 4,383,339, Cl. 4-448.000.

Miller, John E.: *See*—
Joseph, Stephen H.; Miller, John E.; and Williamson, Lawrie A., 4,383,968, Cl. 264-503.000.

Milliken Research Corporation: *See*—
Pascoe, William M., Sr., 4,383,404, Cl. 57-284.000.

Millisor, Daniel H., to Procter & Gamble Company. The. Butter-flavored oils. 4,384,008, Cl. 426-613.000.

Mills Products, Inc.: *See*—
Katona, Joseph W., 4,383,519, Cl. 126-190.000.

Minami, Toshio: *See*—
Isome, Yasuo; Minami, Toshio; and Takahashi, Tadahiko, 4,383,962, Cl. 264-196.000.

Ministry of International Trade & Industry: *See*—
Jido, Morio, 4,383,767, Cl. 366-154.000.

Mink, Hans G.: *See*—
Spanjersberg, Albertus C.; Mink, Hans G.; and Barwegen, Johannes H. M., 4,383,644, Cl. 239-3.000.

Minnesota Mining and Manufacturing Company: *See*—
Doty, Charles T.; and Mosier, Douglas R., 4,384,314, Cl. 361-160.000.
Ferguson, Alan N.; and Reynolds, Kenneth, 4,384,034, Cl. 430-83.000.
Fowler, Anthony J., 4,384,022, Cl. 428-296.000.
Young, Chung-I; and Williams, Brian H., 4,383,878, Cl. 156-235.000.

Minolta Camera Kabushiki Kaisha: *See*—
Hanamoto, Hiroyuki; and Horie, Yoshihiro, 4,383,756, Cl. 355-14.0CU.
Tanaka, Atsuyuki; Kojima, Hiroaki; Kaieda, Shozo; Kakiuchi, Tokuzi; Nishioka, Nobuaki; Tadauchi, Yukio; and Nakagami, Hidekazu, 4,384,272, Cl. 382-50.000.

Mirhej, Michael E., to Du Pont de Nemours, E. I., and Company. Spinneret plate. 4,383,817, Cl. 425-463.000.

Miskin, Richard B. Earth moving scraper. 4,383,380, Cl. 37-129.000.

Mitchell, Douglas L.; and Lansbury, Robert C., to Imperial Chemical Industries Limited. Composite heat-scalable films. 4,384,024, Cl. 428-349.000.

Mitsubishi Denki Kabushiki Kaisha: *See*—
Fujita, Shozoo, 4,384,279, Cl. 340-815.200.
Iwaki, Yoshiyuki; and Goto, Hitoshi, 4,384,225, Cl. 310-88.000.
Kawai, Shigetaka, 4,384,227, Cl. 310-213.000.
Shimamoto, Susumu; Ando, Toshinari; Tsuji, Hiroshi; Sato, Takashi; and Hattutori, Yasuhide, 4,384,265, Cl. 335-216.000.
Shimotori, Kazuhiro; Ichiyama, Toshio; and Tobita, Yooichi, 4,384,218, Cl. 307-304.000.

Mitsubishi Gas Chemical Company, Inc.: *See*—
Ayano, Satoshi; Gaku, Morio; Ikeguchi, Nobuyuki; Kinbara, Hidenori; and Osaki, Yasunari, 4,383,903, Cl. 204-159.160.

Mitsubishi Jukogyo Kabushiki Kaisha: *See*—
Kubo, Masayoshi; Hasegawa, Akira; Sakaguchi, Katsuyoshi; and Fukuda, Shozo, 4,383,808, Cl. 425-47.000.

Mitsubishi Rayon Company, Limited: *See*—
Okamura, Kiyonobu; Mizuo, Shindo; and Fukunaga, Osamu, 4,384,023, Cl. 428-338.000.

Mitsubishi Steel Mfg. Co., Ltd.: *See*—
Honda, Tetsuro; Sato, Motoyuki; and Itagaki, Toyoo, 4,383,703, Cl. 280-682.000.

Mitter, Mathias. Tubular stencil unit for screen printing. 4,383,481, Cl. 101-116.000.

Miura, Takuji: *See*—
Suzuki, Kiyoaki; Watanabe, Masaru; Yamamoto, Hisashi; Hayashi, Tomoharu; and Miura, Takuji, 4,384,174, Cl. 179-115.50R.

Miyazaki, Haruhiko; Shiomi, Yasushi; Fujitus, Satoru; Masunaga, Katsuro; and Yanagisawa, Hiroshi, to UBE Industries, Ltd. Process for the preparation of oxalic acid diesters. 4,384,133, Cl. 560-204.000.

Miyoshi, Mitsuji: *See*—
Matsuno, Mitsuo; Kawamata, Etsuo; Kuroda, Nobuyuki; Matsuura, Kazuo; and Miyoshi, Mitsuji, 4,384,088, Cl. 526-116.000.

Mizell, James A.: *See*—
Rubio, Marcelino; and Mizell, James A., 4,383,955, Cl. 264-46.600.

Mizuguchi, Osamu: *See*—
Tuda, Goro; and Mizuguchi, Osamu, 4,383,455, Cl. 74-469.000.

Mizuguti, Hirosi: *See*—
Kitadate, Kenichiro; Tanimoto, Yoshinori; and Mizuguti, Hirosi, 4,384,360, Cl. 378-202.000.

Mizuo, Shindo: *See*—
Okamura, Kiyonobu; Mizuo, Shindo; and Fukunaga, Osamu, 4,384,023, Cl. 428-338.000.

Mizutani, Yoshihisa, to Tokyo Shibaura Denki Kabushiki Kaisha. Method for fabricating semiconductor device. 4,383,883, Cl. 156-603.000.

Moba Holding Barneveld B.V.: *See*—
van Kettenbroek, Hendrik J., 4,383,613, Cl. 209-514.000.

Mobay Chemical Corporation: *See*—
Rawlings, Herbert L.; and Reinert, Gerard E., 4,384,067, Cl. 524-493.000.

Mobil Oil Corporation: *See*—
Chu, Chin-Chiun, 4,384,155, Cl. 585-466.000.
Dessau, Ralph M., 4,384,153, Cl. 585-366.000.
Huang, Tracy J., 4,384,161, Cl. 585-722.000.
Merriman, Horace B., 4,383,554, Cl. 138-101.000.

Mobley, Scott R.: *See*—
Lorenz, Andrew K.; and Mobley, Scott R., 4,383,547, Cl. 137-240.000.

Mochizuki, Masafumi: *See*—
Saito, Takashi; Mochizuki, Masafumi; and Hirano, Toshio, 4,384,352, Cl. 369-77.000.

Mohan, Anand: *See*—
Pruyn, Wilhelmus A.; and Mohan, Anand, 4,383,896, Cl. 204-11.000.

Moller, Bo: *See*—
Vogl, Georg; Moller, Bo; and Soderlindh, Michel, 4,383,741, Cl. 350-538.000.

Molnar, Georg: *See*—
Kuhnlein, Hans; Kung, Hans R.; and Molnar, Georg, 4,383,887, Cl. 159-13.00A.

Monk, Guerdon M. Shock actuated fire prevention system for automobiles. 4,383,579, Cl. 169-62.000.

Monsanto Company: *See*—
Merten, Helmut L.; and Wilder, Gene R., 4,384,142, Cl. 564-450.000.

Montag, Bernhard: *See*—
Opitz, Heinrich; Montag, Bernhard; and Urban, Gerd, 4,384,039, Cl. 430-422.000.

Montaruli, Vincent: *See*—
Williams, Robert W.; and Montaruli, Vincent, 4,383,823, Cl. 432-148.000.

Montefameglio, Livio; Ciaccio, Lorenzo; and Spiga, Guido, to Weber S.p.A. Carburetor. 4,383,952, Cl. 261-72.00R.

Moore, James E.; Orkin, Ona V.; and Schroeter, Siegfried H., to General Electric Company. Photocurable acrylic coated polycarbonate articles. 4,384,026, Cl. 428-412.000.

Moore, Michael T.; Olson, John M.; and Stremel, Donald A., to International Business Machines Corporation. Ink jet inks and method of making. 4,383,859, Cl. 106-22.000.

Moraw, Klaus; and Paul, Hans-Gunther, to Rutgerswerke Aktiengesellschaft. Asbestos-free friction material. 4,384,054, Cl. 523-156.000.

Morawski, Lawrence V.: *See*—
Morawski, Longine V.; and Morawski, Lawrence V., 4,383,368, Cl. 33-174.00Q.

Morawski, Longine V.; and Morawski, Lawrence V. Concentricity gage. 4,383,368, Cl. 33-174.00Q.

Morganti, Victor M.; Negi, Virendra S.; and Graesser, Michael J. D., to Honeywell Information Systems Inc. Firmware controlled search and verify apparatus and method for a data processing system. 4,384,343, Cl. 364-900.000.

Morita, Masayuki; Kawaharazaki, Takashi; and Shimogawa, Toshiaki, to Nippon Soken, Inc. Seat belt retracting and winding device. 4,383,658, Cl. 242-107.000.

Morita, Masayuki; and Nakano, Tasuku, to Kabushiki Kaisha Tokai Rika Denki Seisakusho. Turn indicator system for use in automobiles. 4,384,270, Cl. 340-73.000.

Morita, Minoru; Sato, Shimio; Hashimoto, Takao; and Kitaoka, Yoji, to Yamagata University. Process for direct liquefaction of coal. 4,383,911, Cl. 208-10.000.

Morrey, William B., to CXA Ltd. Primer assembly. 4,383,484, Cl. 102-275.300.

Moschetti, Anthony P.; Smith, J. Thomas; Quackenbush, Carr L. W.; Lingertat, Helmut; and Nehring, Vincent W., to GTE Laboratories Incorporated. Method of producing dense silicon nitride ceramic articles having controlled surface layer composition. 4,383,958, Cl. 264-65.000.

Moser, Roland: *See*—
Lohse, Friedrich; Trachsler, Dieter; and Moser, Roland, 4,384,084, Cl. 525-504.000.

Mosier, Douglas R.: *See*—
Doty, Charles T.; and Mosier, Douglas R., 4,384,314, Cl. 361-160.000.

Moss, Lester L., to Mosstype Corporation. Hydraulically-actuated mandrel for a demountable printing cylinder. 4,383,483, Cl. 101-375.000.

Mosstype Corporation: *See*—
Moss, Lester L., 4,383,483, Cl. 101-375.000.

Motoren-und Turbinen-Union Munchen GmbH: *See*—
Hoffmulier, Wilhelm, 4,383,809, Cl. 425-78.000.

Motorola, Inc.: *See*—
Allgood, Robert N.; and Kelley, Stephen H., 4,384,277, Cl. 340-347.0DA.
Davis, William F., 4,384,219, Cl. 307-362.000.
Kelley, Stephen H.; and Ulmer, Richard W., 4,384,276, Cl. 340-347.0DA.
Loving, Robert O., Jr.; Zakrzewski, Thaddeus J.; Stedman, Robert B.; and Osberg, Daryl F., 4,384,165, Cl. 174-35.0GC.

Mozer, Forrest S.; and Stauduhar, Richard P., to Mozer, Forrest S. Method and apparatus for speech synthesizing. 4,384,169, Cl. 179-1.0SM.

Mozer, Forrest S.; and Stauduhar, Richard P., to Mozer, Forrest S. Method and apparatus for speech synthesizing. 4,384,170, Cl. 179-1.0SM.

Mueller, Franz-Josef: *See*—
Hartmann, Horst; Hochstein, Waldhelm; Kaibei, Gerd; and Mueller, Franz-Josef, 4,383,894, Cl. 203-70.000.
Kaibel, Gerd; Hartmann, Horst; Hochstein, Waldhelm; and Mueller, Franz-Josef, 4,383,893, Cl. 203-35.000.

Muldashev, Ernst R.; Nigmatullin, Rafik T.; Galimova, Venera U.; Zakhvatkina, Klara A.; and Muslimov, Sagit A. Homotransplant for conjunctiviplasty. 4,383,338, Cl. 3-13.000.

Muller, Beat; and Roth, Martin, to Ciba-Geigy AG. Hydrazone derivatives containing a quaternary ammonium group useful as UV absorbers. 4,383,948, Cl. 260-459.00A.

Muller, Friedhelm: *See*—
Lobach, Wilfried; Kolb, Gunter; Lehmann, Wolfgang; Cramm, Gunther; Muller, Friedhelm; and Muszik, Janos, 4,384,110, Cl. 528-323.000.

Muller, Richard S.; and Dickerson, Richard C., to Ecolochem, Inc. Mobile fluid purification system. 4,383,920, Cl. 210-87.000.

Multi-Products Company: *See*—
Baker, William T., 4,383,552, Cl. 138-46.000.

Mumford, George V.; and Price, James H., to Owens-Illinois, Inc. Convertible child-resistant closure assembly. 4,383,619, Cl. 215-222.000.

Mumford, George V., to Owens-Illinois, Inc. Container and closure. 4,383,620, Cl. 215-329.000.

Murata Kikai Kabushiki Kaisha: *See*—
Kawamura, Shuzo, 4,383,654, Cl. 242-43.200.

Murata Manufacturing Co., Ltd.: *See*—
Aoki, Shigeru, 4,384,267, Cl. 337-407.000.
Kadota, Michio, 4,384,264, Cl. 333-193.000.

Murata, Yoichi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Method and apparatus for inspecting rough idling of a multiple-cylinder engine. 4,383,440, Cl. 73-117.300.

Murray Corporation: *See*—
Proctor, Robert H., 4,383,692, Cl. 277-178.000.

Murtha, Timothy P.; and Drake, Charles A., to Phillips Petroleum Company. Catalysts for hydrogenation of unsaturated dinitriles. 4,383,940, Cl. 252-460.000.

Muskovac, Nicholas G., to Vectrol, Inc. Energy saving motor controller. 4,384,243, Cl. 318-729.000.

Muslimov, Sagit A.: *See*—
Muldashev, Ernst R.; Nigmatullin, Rafik T.; Galimova, Venera U.; Zakhvatkina, Klara A.; and Muslimov, Sagit A., 4,383,338, Cl. 3-13.000.

Muszik, Janos: *See*—
Lobach, Wilfried; Kolb, Gunter; Lehmann, Wolfgang; Cramm, Gunther; Muller, Friedhelm; and Muszik, Janos, 4,384,110, Cl. 528-323.000.

Myers, Wayne A. Lure container. 4,383,385, Cl. 43-57.100.

Nagai, Masahiko; and Yano, Minoru, to Toyota Jidosha Kogyo Kabushiki Kaisha. Distributor for an internal combustion engine containing an apparatus for suppressing noise. 4,384,178, Cl. 200-19.00R.

Nagai, Yohei; and Okamoto, Shimaji, to Nippon Gakki Seizo Kabushiki Kaisha. Electronic musical instrument. 4,383,462, Cl. 84-1.260.

Naito, Hirokuni: *See*—
Tashiro, Hisao; Naito, Hirokuni; Takayama, Masayuki; and Yoshimura, Isao, 4,384,032, Cl. 429-249.000.

Naito, Tadashi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Apparatus for sensing the presence and position of a crank pulley bolt in an internal combustion engine. 4,383,442, Cl. 73-119.00R.

Nakagami, Hidekazu: *See*—
Tanaka, Atsuyuki; Kojima, Hiroaki; Kaieda, Shozo; Kakiuchi, Tokuzi; Nishioka, Nobuaki; Tadauchi, Yukio; and Nakagami, Hidekazu, 4,384,272, Cl. 382-50.000.

Nakagami, Kashiro, to Isolite Babcock Refractories Co., Ltd. Method of producing mullite ceramic fiber products. 4,384,046, Cl. 501-95.000.

Nakamura, Hiroyuki; Shikata, Makoto; Ohgami, Masaaki; and Hara, Kazuo, to Fuji Jukogyo Kabushiki Kaisha; and Nissan Motor Co., Ltd. System for regulating the engine speed. 4,383,510, Cl. 123-352.000.

Nakamura, Kisaku; Jimi, Eiji; Goto, Haruyuki; and Hori, Akio, to Tokyo Shibaura Denki Kabushiki Kaisha. Method of manufacturing a semiconductor element. 4,383,886, Cl. 156-659.100.

Nakano, Gregory S.: *See*—
Wilger, John F.; Nakano, Gregory S.; Orillo, Stephen, Jr.; Medrano, Alfred; Sears, Billy D.; and Uyetake, Tadao, 4,383,395, Cl. 51-245.000.

Nakano, Tasuku: *See*—
Morita, Masayuki; and Nakano, Tasuku, 4,384,270, Cl. 340-73.000.

Nakano, Tomio, to Fujitsu Limited. Semiconductor memory device. 4,384,347, Cl. 365-189.000.

Nakayama, Keiji: *See*—
Hibino, Shinichi; and Nakayama, Keiji, 4,383,737, Cl. 350-347.000.

Nakayama, Takashi; Kajita, Kohji; and Yamagata, Seiichi, to Toray Industries, Inc. Multicolored yarn and method. 4,383,403, Cl. 57-207.000.
Nakazawa, Koji; Sato, Michio; Kasai, Shin; Kawaguchi, Yutaka; and Kikuchi, Toshiaki, to Nitto Boseki Co., Ltd. Traverse motion used in combination with device for winding a continuous elongate element. 4,383,653, Cl. 242-43.00R.
Nalco Chemical Company: *See*—
Hyde, James A.; Breslin, Michael D.; Cosper, David R.; and Kaplan, Roy I., 4,383,889, Cl. 162-26.000.
Srivatsa, Sanjay R., 4,383,927, Cl. 210-708.000.
Narasaka, Shin: *See*—
Otsuka, Kazuo; Narasaka, Shin; and Hasegawa, Shumpei, 4,383,409, Cl. 60-276.000.
Naruchi, Tatsuyuki: *See*—
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National Research Development Corporation: *See*—
Joseph, Stephen H.; Miller, John E.; and Williamson, Lawrie A., 4,383,968, Cl. 264-503.000.
Litington, Alan H., 4,383,728, Cl. 350-1.700.
National Starch And Chemical Corporation: *See*—
Trotter, Jimmy R.; Hawkins, James M.; and McConnell, Richard L., 4,384,064, Cl. 524-239.000.
NCR Corporation: *See*—
Devchoudhury, Rathindra N., 4,384,326, Cl. 364-200.000.
Near, Charles W.: *See*—
Watson, Robert E.; Walden, Jack M.; and Near, Charles W., 4,384,328, Cl. 364-200.000.
Negi, Virendra S.: *See*—
Morganti, Victor M.; Negi, Virendra S.; and Graesser, Michael J. D., 4,384,343, Cl. 364-900.000.
Tague, Steven A.; and Negi, Virendra S., 4,384,340, Cl. 364-736.000.
Tague, Steven A.; and Negi, Virendra S., 4,384,341, Cl. 364-763.000.
Nehring, Vincent W.: *See*—
Moschetti, Anthony P.; Smith, J. Thomas; Quackenbush, Carr L. W.; Lingertat, Helmut; and Nehring, Vincent W., 4,383,958, Cl. 264-65.000.
Nestier Corporation: *See*—
Miller, Daniel A., 4,383,614, Cl. 211-49.00D.
Nestor, Charles R., to General Motors Corporation. Break-out protector and wiring harness including same. 4,384,167, Cl. 174-71.00R.
Neukam, Theo: *See*—
Korte, Siegfried; Neukam, Theo; and Suling, Carlhans, 4,384,091, Cl. 526-222.000.
Neukermans, Armand P.: *See*—
LaBarre, Lawrence J.; Oliver, Bernard M.; Tyler, Charles E.; Thompson, Dennis C.; Neukermans, Armand P.; and McManigill, Douglass, 4,384,298, Cl. 346-129.000.
Neuman, Werner E.; Head, Michael B.; and Kummel, Marshall L., to Corcom, Inc. Leadless filter. 4,384,263, Cl. 333-181.000.
Newman, Frank E. Conveyor control apparatus. 4,383,598, Cl. 193-35.00A.
Newman, Neil F.; and Kowalski, Ronald C., to Exxon Research & Engineering Co. Process for the manufacture of halogenated elastomers. 4,384,072, Cl. 525-356.000.
Newsom, William S., Jr., to Occidental Research Corporation. Stabilization of liquid fertilizer compositions. 4,383,846, Cl. 71-33.000.
Newton, Herbert H. Knife alignment sensor. 4,383,369, Cl. 33-185.00R.
NI Industries Inc.: *See*—
Osborn, Doyle L., 4,383,716, Cl. 301-37.00R.
Nichols, Roy L., to United States of America, Navy. Active optical terminal homing. 4,383,663, Cl. 244-3.160.
Niemoller, Gerhard; Stromberg, Wilfried; and Schneider, Friedhelm, to Becker-Prunte GmbH; and Stahlhammer Bommern Gebr. Schneider. Scraper for chains in chain conveyors, particularly for use underground. 4,383,603, Cl. 198-731.000.
Nigmatullin, Rafik T.: *See*—
Muldashev, Ernst R.; Nigmatullin, Rafik T.; Galimova, Venera U.; Zakhvatkina, Klara A.; and Muslimov, Sagit A., 4,383,338, Cl. 3-13.000.
Nigol, Olaf; and Houston, Herbert J., to Slater Steel Industries Limited. Coulomb-type vibration absorber for suspended cables and suspended cable combined therewith. 4,384,166, Cl. 174-42.000.
Nihei, Fumihiro: *See*—
Kashima, Norio; and Nihei, Fumihiro, 4,383,844, Cl. 65-4.210.
Nihon Servo Kabushiki Kaisha: *See*—
Sato, Kazuo; and Sakamoto, Masafumi, 4,384,226, Cl. 310-89.000.
Nilsson, Gosta; and Lundin, Hans, to A B Gemla Plast. Ventilator. 4,383,477, Cl. 98-41.0AV.
Nimry, Tayseer S.; Fields, Ellis K.; and Paschke, Edward E., to Standard Oil Company (Indiana). Fibers and filled molding compositions from copolyimides and polyimides derived from tetramethylcyclobutane-1,2,3,4-tetracarboxylic dianhydride and diamines. 4,384,071, Cl. 524-600.000.
Nippon Electric Co., Ltd.: *See*—
Inoue, Takeshi; and Takahashi, Sadayuki, 4,384,229, Cl. 310-315.000.
Masaki, Masaru, 4,384,361, Cl. 455-31.000.
Sakuma, Hiraku, 4,384,287, Cl. 340-771.000.
Shiki, Haruo; and Ohmori, Toru, 4,384,358, Cl. 375-100.000.
Nippon Gakki Seizo Kabushiki Kaisha: *See*—
Nagai, Yohei; and Okamoto, Shimaji, 4,383,462, Cl. 84-1.260.
Sata, Tekeo; Takamura, Masayuki; Yamagishi, Tomoo; Hoshi, Toshiharu; and Iijima, Kenzaburo, 4,383,856, Cl. 419-6.000.
Yokoyama, Kenji, 4,384,261, Cl. 330-267.000.
Nippon Kogaku K.K.: *See*—
Nozawa, Hideyo; and Dobashi, Toshio, 4,383,743, Cl. 354-64.000.
Nippon Oil Company, Limited: *See*—
Matsubara, Saburo; and Iwai, Sakuya, 4,384,080, Cl. 525-338.000.
Matsuno, Mitsuo; Kawamata, Etsuo; Kuroda, Nobuyuki; Matsuura, Kazuo; and Miyoshi, Mitsuji, 4,384,088, Cl. 526-116.000.
Nippon Seiko Kabushiki Kaisha: *See*—
Okabe, Shinichi, 4,383,659, Cl. 242-107.200.
Nippon Sokes, Inc.: *See*—
Akita, Sigeyuki; and Tanaka, Hiroaki, 4,384,262, Cl. 331-66.000.
Morita, Masayuki; Kawaharazaki, Takashi; and Shimogawa, Toshiaki, 4,383,658, Cl. 242-107.000.
Nippon Telegraph & Tele. Public Corp.: *See*—
Kaitsuka, Toshiyuki, 4,384,366, Cl. 455-278.000.
Nippon Telegraph & Telephone Public Corporation: *See*—
Kashima, Norio; and Nihei, Fumihiro, 4,383,844, Cl. 65-4.210.
Nippon Zeon Co., Ltd.: *See*—
Kubo, Yoichiro; Ohishi, Tetsu; and Ohura, Kiyomori, 4,384,081, Cl. 525-339.000.
Okuda, Takao; and Hada, Nobuhide, 4,384,055, Cl. 523-174.000.
Nippondenso Co., Ltd.: *See*—
Sano, Hiromi; and Suzuki, Masatoshi, 4,383,906, Cl. 204-416.000.
Nishida, Eiithi, to Tokai Electric Wire Company Limited. Cord tension device for plug making machine. 4,383,811, Cl. 425-123.000.
Nishimura, Tamotsu, to Futaba Kinzoku Kogyo Kabushiki Kaisha. Closing device for doors and the like. 4,383,707, Cl. 292-110.000.
Nishioka, Nobuaki: *See*—
Tanaka, Atsuyuki; Kojima, Hiroaki; Kaieda, Shozo; Kakiuchi, Tokuzi; Nishioka, Nobuaki; Tadauchi, Yukio; and Nakagami, Hidekazu, 4,384,272, Cl. 382-50.000.
Nissan Motor Company, Limited: *See*—
Fukuhara, Hiroshige; Hirota, Yukitsugu; and Sone, Masazumi, 4,384,331, Cl. 364-431.120.
Higashiyama, Kazuhiro; Hosoya, Katsumi; Kadowaki, Shyunichi; and Yano, Tsuneomi, 4,383,515, Cl. 123-489.000.
Kakimoto, Toshihiko, 4,383,679, Cl. 267-8.00R.
Kimura, Susumu, 4,383,410, Cl. 60-278.000.
Matsuda, Toshiro; and Honda, Minoru, 4,384,330, Cl. 364-426.000.
Nakamura, Hiroyuki; Shikata, Makoto; Ohgami, Masaaki; and Hara, Kazuo, 4,383,510, Cl. 123-352.000.
Yokoyama, Junichi, 4,383,501, Cl. 123-41.100.
Nittetsu Mining Co., Ltd.: *See*—
Oshima, Masayuki; and Matsui, Yasuhiko, 4,383,890, Cl. 162-157.600.
Nitto Boseki Co., Ltd.: *See*—
Nakazawa, Koji; Sato, Michio; Kasai, Shin; Kawaguchi, Yutaka; and Kikuchi, Toshiaki, 4,383,653, Cl. 242-43.00R.
Niwa, Yukichi: *See*—
Ogino, Yasuo; Niwa, Yukichi; Ohwada, Mitsutoshi; Tanaka, Kazuo; and Koumura, Noboru, 4,384,199, Cl. 250-204.000.
Noble, Stewart A.: *See*—
Coe, Paul L.; Jones, Albert S.; Noble, Stewart A.; and Walker, Richard T., 4,383,990, Cl. 424-180.000.
Noda, Toshiharu: *See*—
Matsumoto, Kunio; Noda, Toshiharu; Fujii, Tadashiro; Watanabe, Susumu; Matsumoto, Kazuhiko; and Katsuragi, Shigeo, 4,384,041, Cl. 435-24.000.
Nola, William M. Storage stabilized integrator. 4,384,257, Cl. 328-127.000.
Nomura, Kenji: *See*—
Ohashi, Takehisa; Shimazaki, Masami; Nomura, Kenji; Kan, Kazunori; and Watanabe, Kiyoshi, 4,384,139, Cl. 562-512.000.
Noren, Gerry K., to DeSoto, Inc. Volatile amine-cured trialkoxysilyl-containing aqueous latex coatings. 4,384,013, Cl. 427-255.400.
North American Manufacturing Corp.: *See*—
Landry, Archie C., 4,383,383, Cl. 42-67.000.
Northcutt, Paul E.: *See*—
Scraggs, Charles R.; and Northcutt, Paul E., 4,383,344, Cl. 15-53.00A.
Nortron Corporation: *See*—
Van Blerk, Victor B.; and Curchod, Donald B., 4,383,370, Cl. 33-203.180.
Nosler, John C., to Coe Manufacturing Company, The. Edge-responsive apparatus for counting conveyor-transported articles. 4,384,195, Cl. 377-53.000.
Notaro, Salvador P. Ozone-generating assembly. 4,383,976, Cl. 422-186.180.
Nouvelles Applications Technologiques: *See*—
Lenglet, Eric L. H.; and Marchal, Phillippe A. H., 4,383,423, Cl. 62-467.00R.
Nowakowski, Peter M.; Boberski, William G.; and Seiner, Jerome A., to PPG Industries, Inc. Metal condensed phosphate hardener coated with reaction product from a metal aluminate and/or a metal borate. 4,383,866, Cl. 106-308.00B.
Nozaki, Shigeki, to Fujitsu Limited. Method for testing semiconductor memory device. 4,384,348, Cl. 365-201.000.
Nozawa, Hideyo; and Dobashi, Toshio, to Nippon Kogaku K.K. Water-proof camera. 4,383,743, Cl. 354-64.000.
Nu-Way Energy Limited: *See*—
Findlay, James W.; Darby, John; Lewis, David; and Wenn, Donald F., 4,383,824, Cl. 432-222.000.
Numamoto, Yukio; and Kasai, Juichi, to Showa Denko Kabushiki Kaisha, 043833763; and Showa Denko Kabushiki Kaisha. Contact-

dehydrating sheet for drying protein-containing food. 4,383,376, Cl. 34-9.000.

Nyman, Frederick R.; Stevens, Barry; and Ekstrom, Lincoln, to RCA Corporation. Drying process for video discs. 4,383,961, Cl. 264-107.000.

Oba, Takeo; Bannai, Kiyoshi; Tanaka, Toshio; Watanabe, Kenzo; Naruchi, Tatsuyuki; Komoriya, Keiji; Kurozumi, Seizi; and Hoshina, Kenji, to Teijin Limited. Derivative of thiazolo[3,2-a]pyrimidine and a process for the preparation thereof and a drug containing it. 4,383,996, Cl. 424-251.000.

Obata, Haruyuki: *See*—
Ishikawa, Norikatsu; Onaka, Hidemi; Obata, Haruyuki; Tate, Takao; Tanahashi, Toshio; and Hagino, Isamu, 4,383,512, Cl. 123-440.000.

Obermayer, Bertram: *See*—
Skatsche, Othmar; and Obermayer, Bertram, 4,383,502, Cl. 123-41.440.

O'Brien, John V., to Koch Process Systems, Inc. Distillative separation of methane and carbon dioxide. 4,383,842, Cl. 62-20.000.

Occidental Chemical Corporation: *See*—
Wagner, George M., 4,383,858, Cl. 106-18.140.

Occidental Research Corporation: *See*—
Dines, Martin B., 4,383,980, Cl. 423-54.000.
Newsom, William S., Jr., 4,383,846, Cl. 71-33.000.

O'Connell, Charles J. Remote camera actuator. 4,383,744, Cl. 354-81.000.

Oda, Mituwo: *See*—
Hayakawa, Masao; Maeda, Takamichi; and Oda, Mituwo, 4,383,363, Cl. 29-847.000.

Oexler, Rudolf; and Grimm, Eberhard, to Schubert & Salzer Maschinenfabrik Aktiengesellschaft. Apparatus for sealing a rotor housing of an open-end spinning machine. 4,383,406, Cl. 57-406.000.

Ogino, Yasuo; Niwa, Yukichi; Ohwada, Mitsutoshi; Tanaka, Kazuo; and Koumura, Noboru, to Canon Kabushiki Kaisha. Incident position detector for radiation beam. 4,384,199, Cl. 250-204.000.

Ogiwara, Takeo: *See*—
Ohya, Masaki; Kobayashi, Akio; Ogiwara, Takeo; and Satake, Yoshikatsu, 4,384,078, Cl. 525-296.000.

Ogura, Kimio. Apparatus for generating P waves and S waves. 4,383,591, Cl. 181-106.000.

Ohara, Osamu; and Kishimoto, Kazuo, to Teijin Chemicals Ltd. Polycarbonate resin composition having improved properties. 4,384,076, Cl. 525-67.000.

Ohara, Yuji; and Ohnishi, Masahiro, to Fuji Photo Film Co., Ltd. Laser recorder reproducing a picture having half-tones of high accuracy. 4,384,297, Cl. 346-108.000.

Ohashi, Koji; Hosoda, Yutaka; and Kitamura, Toshio, to Asahi Glass Company Ltd. Process for annealing heat fused cast refractory product. 4,383,963, Cl. 264-235.000.

Ohashi, Takehisa; Shimazaki, Masami; Nomura, Kenji; Kan, Kazunori; and Watanabe, Kiyoshi, to Kanegafuchi Chemical Industry Company, Limited. Process for preparation of an optically active β-mercaptoalkanoic acid. 4,384,139, Cl. 562-512.000.

Ohgami, Masaaki: *See*—
Nakamura, Hiroyuki; Shikata, Makoto; Ohgami, Masaaki; and Hara, Kazuo, 4,383,510, Cl. 123-352.000.

Ohishi, Tetsu: *See*—
Kubo, Yoichiro; Ohishi, Tetsu; and Ohura, Kiyomori, 4,384,081, Cl. 525-339.000.

Ohmori, Toru: *See*—
Shiki, Haruo; and Ohmori, Toru, 4,384,358, Cl. 375-100.000.

Ohnishi, Masahiro: *See*—
Ohara, Yuji; and Ohnishi, Masahiro, 4,384,297, Cl. 346-108.000.

Ohsawa, Masato: *See*—
Komuro, Katsuhiro; Suwa, Masateru; Soeno, Koh; and Ohsawa, Masato, 4,383,970, Cl. 420-528.000.

Ohta, Masutomi; and Sakai, Minoru, to Hitachi, Ltd. Apparatus for receiving multiplex information signal. 4,384,304, Cl. 358-147.000.

Ohtomo, Fumio: *See*—
Tamaki, Hiroshi; Ohtomo, Fumio; and Kimura, Kazuaki, 4,384,204, Cl. 250-237.00G.

Ohura, Kiyomori: *See*—
Kubo, Yoichiro; Ohishi, Tetsu; and Ohura, Kiyomori, 4,384,081, Cl. 525-339.000.

Ohwada, Mitsutoshi: *See*—
Ogino, Yasuo; Niwa, Yukichi; Ohwada, Mitsutoshi; Tanaka, Kazuo; and Koumura, Noboru, 4,384,199, Cl. 250-204.000.

Ohya, Masaki; Kobayashi, Akio; Ogiwara, Takeo; and Satake, Yoshikatsu, to Kureha Kagaku Kogyo Kabushiki Kaisha. Antistatic resin composition. 4,384,078, Cl. 525-296.000.

Okabe, Shinichi, to Nippon Seiko Kabushiki Kaisha. Locking device for safety seat belts. 4,383,659, Cl. 242-107.200.

Okada, Yoshio; Igarashi, Yuriko; and Okubo, Kimio, to Kureha Kagaku Kogyo Kabushiki Kaisha. Pressure-sensitive recording material. 4,383,705, Cl. 282-27.500.

Okada, Yoshio; Okubo, Kimio; and Igarashi, Yuriko, to Kureha Kagaku Kogyo Kabushiki Kaisha. Pressure-sensitive recording paper. 4,383,706, Cl. 282-27.500.

Okamoto, Shimaji: *See*—
Nagai, Yohei; and Okamoto, Shimaji, 4,383,462, Cl. 84-1.260.

Okamura, Kiyonobu; Mizuo, Shindo; and Fukunaga, Osamu, to Mitsubishi Rayon Company, Limited. Porous polyethylene film. 4,384,023, Cl. 428-338.000.

Okano, Hiroshi; and Gunji, Yoshihisa, to Toyota Iidosha Kogyo Kabushiki Kaisha. Ring and groove contraction for assembling a turbocharger. 4,383,799, Cl. 415-219.00C.

Okubo, Kimio: *See*—
Okada, Yoshio; Igarashi, Yuriko; and Okubo, Kimio, 4,383,705, Cl. 282-27.500.
Okada, Yoshio; Okubo, Kimio; and Igarashi, Yuriko, 4,383,706, Cl. 282-27.500.

Okuda, Takao; and Hada, Nobuhide, to Nippon Zeon Co. Ltd. Hard vinyl chloride resin composition for information signal recording media. 4,384,055, Cl. 523-174.000.

Oliver, Bernard M.: *See*—
LaBarre, Lawrence J.; Oliver, Bernard M.; Tyler, Charles E.; Thompson, Dennis C.; Neukermans, Armand P.; and McManigill, Douglass, 4,384,298, Cl. 346-129.000.

Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; Kunkel, Heinrich; Dobhan, Herbert; Horling, Peter; and Klupfel, Norbert, to SKF Kugellagerfabriken GmbH. Method and apparatus for casting or injection-molding of cages of cylindrical rolling elements. 4,383,670, Cl. 249-60.000.

Olson, John M.: *See*—
Moore, Michael T.; Olson, John M.; and Stremel, Donald A., 4,383,859, Cl. 106-22.000.

Olympus Optical Company Ltd.: *See*—
Taira, Akio, 4,384,200, Cl. 250-205.000.
Yanagida, Tuneo, 4,384,308, Cl. 360-8.000.

Omure, Yukio: *See*—
Hisamoto, Iwao; Maeda, Chiaki; Omure, Yukio; and Onishi, Takashi, 4,383,932, Cl. 252-194.000.

Onaka, Hidemi: *See*—
Ishikawa, Norikatsu; Onaka, Hidemi; Obata, Haruyuki; Tate, Takao; Tanahashi, Toshio; and Hagino, Isamu, 4,383,512, Cl. 123-440.000.

Ondracek, Gerhard, to Kernforschungszentrum Karlsruhe Gesellschaft mit beschrankter Haftung. Method for producing molded bodies containing highly active radioactive wastes from glass granules embedded in a metallic matrix. 4,383,944, Cl. 252-628.000.

Onishi, Takashi: *See*—
Hisamoto, Iwao; Maeda, Chiaki; Omure, Yukio; and Onishi, Takashi, 4,383,932, Cl. 252-194.000.

Ono, Tadahiro, to Toshiba Kikai Kabushiki Kaisha; and Kabushiki Kaisha Toei Denki Seisakusho. Speed control systems of synchronous motors. 4,384,242, Cl. 318-721.000.

Ontario Energy Corp.: *See*—
Kizior, Thaddeus E., 4,383,914, Cl. 208-177.000.

Ooshima, Hiyoshi: *See*—
Takamatsu, Osamu; Ooshima, Hiyoshi; Kaneko, Katsuhiro; Hayashi, Hiroyuki; and Tsuda, Toyomori, 4,383,493, Cl. 114-294.000.

Opitz, Heinrich; Montag, Bernhard; and Urban, Gerd, to Siemens Aktiengesellschaft. Method for recording local boundary-layer flow-line directions in liquid media. 4,384,039, Cl. 430-422.000.

Optimetrix Corporation: *See*—
Phillips, Edward H., 4,383,757, Cl. 355-53.000.

Orabona, Joseph J., to Presto Lock, Inc. Safety device for combination locks. 4,383,425, Cl. 70-312.000.

Oregon Etablissement fur Patentverwerting: *See*—
Assmann, Hans, 4,383,470, Cl. 86-20.00R.

Organisation Europeenne de Recherches Spatiales: *See*—
Richard, Daniel C., 4,384,164, Cl. 136-245.000.

Orillo, Stephen, Jr.: *See*—
Wilger, John F.; Nakano, Gregory S.; Orillo, Stephen, Jr.; Medrano, Alfred; Sears, Billy D.; and Uyetake, Tadao, 4,383,395, Cl. 51-245.000.

Orkin, Ona V.: *See*—
Moore, James E.; Orkin, Ona V.; and Schroeter, Siegfried H., 4,384,026, Cl. 428-412.000.

Orlowski, Jan A.: *See*—
Butler, David V.; Kidd, Patrick D.; and Orlowski, Jan A., 4,383,826, Cl. 433-228.000.

Ortho Pharmaceutical Corporation: *See*—
Dubash, Darius D.; Kaplan, Leonard L.; and Ziets, George A., 4,383,986, Cl. 424-25.000.
Kane, Vinayak V., 4,384,126, Cl. 549-346.000.

Osaki, Yasunari: *See*—
Ayano, Satoshi; Gaku, Morio; Ikeguchi, Nobuyuki; Kinbara, Hidenori; and Osaki, Yasunari, 4,383,903, Cl. 204-159.160.

Osberg, Daryl F.: *See*—
Loving, Robert O., Jr.; Zakrzewski, Thaddeus J.; Stedman, Robert B.; and Osberg, Daryl F., 4,384,165, Cl. 174-35.0GC.

Osborn, Doyle L., to NI Industries Inc. Wheel trim retention system. 4,383,716, Cl. 301-37.00R.

Osborne, Donald L.; Shriver, Joe E.; and McClure, John R., to Spe.ry Corporation. Shredbar apparatus. 4,383,652, Cl. 241-88.400.

Osegowitsch, Viktor: *See*—
Fergg, Berthold; Osegowitsch, Viktor; and Viehrig, Wolfgang, 4,383,748, Cl. 354-179.000.

O'Shea, Francis X., to Uniroyal, Inc. Ionic elastomer blends with syndiotactic polybutadiene. 4,384,066, Cl. 524-394.000.

Oshima, Masayuki; and Matsui, Yasuhiko, to Nittetsu Mining Co., Ltd.; and Toyo Pulp Co., Ltd. Ceramic sheet and method for producing the same. 4,383,890, Cl. 162-157.600.

Osterman, Harry F.: *See*—
Figiel, Francis J.; and Osterman, Harry F., 4,383,645, Cl. 239-13.000.

Otis Elevator Company: *See*—
Masel, Marvin; Meehan, Ralph J.; and Schroeder, Joris, 4,384,275, Cl. 340-347.00P.

Otsuka Kagaku Yakuhin Kabushiki Kaisha: *See*—
Shono, Tatsuya; and Matsumura, Yoshihiro, 4,384,144, Cl. 568-347.000.

Otsuka, Kazuo; Narasaka, Shin; and Hasegawa, Shumpei, to Honda Motor Co., Ltd. Air/fuel ratio control system for internal combustion engines, having function of detecting air/fuel ratio control initiating timing. 4,383,409, Cl. 60-276.000.

Ott, Karl-Heinz: *See*—
Hilscher, Eduard; Ott, Karl-Heinz; and von Reppert, Rudiger L., 4,383,925, Cl. 210-708.000.

Ottenheimer, Philippe; and Haon, Pierre, to Thomson-CSF. Flight control system for a remote-controlled missile. 4,383,661, Cl. 244-3.140.

Ouellette, Charles W.: *See*—
Cupolo, John; Salisbury, David J.; and Ouellette, Charles W., 4,383,831, Cl. 441-22.000.

Outboard Marine Corporation: *See*—
Walsworth, Frank J., 4,383,504, Cl. 123-73.0AD.

Outokumpu Oy: *See*—
Rastas, Jussi K.; Bjorkqvist, Lars-Goran; Gisler, Raija-Leena; and Liukkonen, Simo S., 4,383,979, Cl. 423-36.000.

Owens-Corning Fiberglas Corporation: *See*—
Grossi, Anthony V.; Hagelee, Leon A.; Hahn, Louis T.; and Marzocchi, Alfred, 4,384,073, Cl. 525-54.500.
Grossi, Anthony V.; Hagelee, Leon A.; Hahn, Louis T.; and Marzocchi, Alfred, 4,384,074, Cl. 525-5 .500.
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Owens-Illinois, Inc.: *See*—
Go, Santos W.; and Burzynski, Dennis J., 4,384,106, Cl. 528-173.000.
Mumford, George V.; and Price, James H., 4,383,619, Cl. 215-222.000.
Mumford, George V., 4,383,620, Cl. 215-329.000.

Oxford, Richard O.: *See*—
Macho, Jan M.; and Oxford, Richard O., 4,383,488, Cl. 108-129.000.

Page, Frank C., III, to Ethyl Products Company. Dispensing closure with stationary axial plug. 4,383,623, Cl. 222-521.000.

Pagliarini, John A., Jr.; and White, Ronald P., to Sanders Associates, Inc. Flextensional transducer. 4,384,351, Cl. 367-175.000.

Palson, Richard C. J., to Woodlets, Inc. Forced flow vapor distribution device. 4,383,951, Cl. 261-30.000.

Panafacom Limited: *See*—
Imura, Takao; Koyanagi, Shigeru; and Joda, Yoshihiro, 4,384,342, Cl. 364-900.000.

Panagiotopulos, Panagiotis. Compact hygienic syringe apparatus. 4,383,531, Cl 604-114.000.

Pandolfe, William D., to Gaulin Corporation. Homogenizing apparatus and method. 4,383,769, Cl. 366-337.000.

Pantke, Hellmuth: *See*—
Preuss, Reinhard; Grutze, Joachim; Beck, Ulrich; Pantke, Hellmuth; and Vogel, Karl, 4,383,835, Cl. 8-602.000.

Parker, Adrian R., to Partech (Electronics) Limited. Monitoring solids content of liquid sludges. 4,383,437, Cl. 73-61.00R.

Partech (Electronics) Limited: *See*—
Parker, Adrian R., 4,383,437, Cl. 73-61.00R.

Paschke, Edward E.; and Donohue, J. A., to Standard Oil Company (Indiana). Polyamides and copolyamides containing 2,2',4,4',6,6'-hexamethyl-3,3'-diaminobiphenyl moieties. 4,384,112, Cl. 528-347.000.

Paschke, Edward E.: *See*—
Nimry, Tayseer S.; Fields, Ellis K.; and Paschke, Edward E., 4,384,071, Cl. 524-600.000.

Pascoe, William M., Sr., to Milliken Research Corporation. Method and apparatus to produce post heated textured yarn. 4,383,404. Cl. 57-284.000.

Paton, Boris E.; Lebedev, Vladimir K.; Kuchuk-Yatsenko, Sergei I.; Sakharnov, Vasily A.; Galian, Boris A.; Asoiants, Grigory B.; Vorobei, Mikhail F.; and Solodovnikov, Sergei A. Apparatus for removing flash from pipes. 4,383,786, Cl. 409-299.000.

Paul, Donald C.: *See*—
Ernst, Richard E.; and Paul, Donald C., 4,383,895, Cl. 203-77.000.

Paul, Hans-Gunther: *See*—
Moraw, Klaus; and Paul, Hans-Gunther, 4,384,054, Cl. 523-156.000.

Paurus, Donald L.; and Lehtola, Evert E., to United States of America, Army. Muzzle position sensor. 4,383,474, Cl. 89-41.0ME.

Pavlovich, Barvinko J.: *See*—
Evgenievich, Paton B.; Mikhailovich, Biletsky, S.; Fedorovich, Tereschenko A.; and Pavlovich, Barvinko J., 4,383,556, Cl. 138-172.000.

Pawlowski, Thomas D., to James River-Dixie/Northern, Inc. Carton. 4,383,612, Cl. 206-525.000.

Pearson, Paul W. Heat control device for a wood or coal burning stove. 4,383,640, Cl. 236-11.000.

Peddinghaus, Rolf: *See*—
Klaus, Siegfried, 4,383,430, Cl. 72-387.000.

Peilloud, Fernand; and Gladel, Gerard, to Societe Nouvelle de Roulements; and Regie Nationale des Usines Renault. Product for manufacturing clutch or brake linings, and method of preparing same. 4,384,053, Cl. 523-153.000.

Peled, Emanuel; and Lombardi, Anthony, to GTE Laboratories Incorporated. Method of manufacturing an electrochemical cell. 4,383,358, Cl. 29-623.100.

Peloquin, Arthur V.: *See*—
Qurnell, Frank D.; and Peloquin, Arthur V., 4,383,394, Cl. 51-241.00S.

Pennanen, Hannu K.: *See*—
Gaske, Joseph E.; Plaisance, Thomas H.; and Pennanen, Hannu K., 4,384,070, Cl. 524-597.000.

Pennwalt Corporation: *See*—
Benzinger, William D.; and Robinson, Donald N., 4,384,047, Cl. 521-64.000.

Perahia, Avraham, to Pertec Computer Corporation. Closed loop servo demodulator for positioning a servo head. 4,384,309, Cl. 360-77.000.

Perez, David J., to United States of America, Air Force. Vibration suppressing trunk fingers for air cushion devices. 4,383,664, Cl. 244-100.00A.

Perkin-Elmer Corporation, The: *See*—
Gelernt, Barry, 4,383,431, Cl. 73-4.00R.

Persson, Bengt, to Br. Perssons Cementvarufabrik AB. Moulding tool. 4,383,671, Cl. 249-66.00R.

Pertec Computer Corporation: *See*—
Perahia, Avraham, 4,384,309, Cl. 360-77.000.

Peters, Edward N.: *See*—
Fox, Daniel W.; and Peters, Edward N., 4,384,143, Cl. 568-33.000.

Peters, James H., to Waconia Manufacturing Industries, Inc. Meat cutter for slicing soft-meat logs. 4,383,459, Cl. 83-411.00R.

Peters, Jeffrey L. Vital signs monitoring apparatus. 4,383,534, Cl. 128-671.000.

Peters, Klaus-Jurgen: *See*—
Gmelin, Karl; and Peters, Klaus-Jurgen, 4,383,513, Cl. 123-454.000.

Petrillo, Edward W., Jr., to E. R. Squibb & Sons, Inc. Phosphinylalkanoyl substituted prolines. 4,384,123, Cl. 548-409.000.

Petro-Canada Exploration Inc.: *See*—
Kizior, Thaddeus E., 4,383,914, Cl. 208-177.000.

Petrolite Corporation: *See*—
Buriks, Rudolf S.; and Lovett, Eva G., 4,383,926, Cl. 210-708.000.
Eaton, Paul E., 4,383,438, Cl. 73-61.200.
Jenkins, Fred W., 4,383,933, Cl. 252-329.000.

Petukhov, Vadim D.: *See*—
Shalashov, Jury F.; Butkin, Vladimir D.; and Petukhov, Vadim D., 4,383,581, Cl. 173-16.000.

Pfeiffer, Gerald R.; Robertson, Gary W.; Thompson, Charles H.; and Williams, Jerry D., to Container Corporation of America. Carton for comestibles and structure for erecting same. 4,383,637, Cl. 229-38.000.

Pfiffner, Albert, to Hoffmann-La Roche Inc. Process for the preparation of morpholine and piperidine derivatives. 4,384,116, Cl. 544-178.000.

Phelps, Thomas C.; and Reese, Clifford J., to Champion International Corporation. Probe system for determining acidity of fluid flowing through pressurized pipe line. 4,383,908, Cl. 204-409.000.

Phillips, Benjamin A., to Allied Corporation. Absorption heating system with improved liquid flow control. 4,383,416, Cl. 62-101.000.

Phillips, Brian L.: *See*—
Argabright, Perry A.; Rhudy, John S.; and Phillips, Brian L., 4,383,930, Cl. 252-8.55D.

Phillips, Edward H., to Optimetrix Corporation. Optical focusing system. 4,383,757, Cl. 355-53.000.

Phillips Petroleum Company: *See*—
Capshew, Charles E., 4,384,087, Cl. 526-114.000.
Cheng, Paul J., 4,383,973, Cl. 422-151.000.
Hagler, Gerald E.; and Hatcher, Charles S., 4,384,098, Cl. 526-348.100.
Hutson, Thomas, Jr.; Makovec, Donald J.; and Beckworth, Alden E., 4,383,977, Cl. 422-235.000.
McDaniel, Max P.; and Meister, John J., 4,384,086, Cl. 526-106.000.
Murtha, Timothy P.; and Drake, Charles A., 4,383,940, Cl. 252-460.000.
Skraba, Frank, 4,384,160, Cl. 585-650.000.
Stacy, Carl J., 4,383,433, Cl. 73-23.100.
Svetlik, Harvey E., 4,383,966, Cl. 264-296.000.

Philpot, James E.: *See*—
Lowell, Herman H.; and Philpot, James E., 4,384,192, Cl. 219-468.000.

Picard, Real. Brake control system for the retractible auxiliary wheel train of a truck trailer. 4,383,696, Cl. 280-81.00R.

Pichon, Laurence: *See*—
Huignard, Jean-Pierre; Herriau, Jean-Pierre; and Pichon, Laurence, 4,383,734, Cl. 350-162.130.

Picker International Limited: *See*—
Young, Ian R.; and Harrison, Colin G., 4,384,255, Cl. 324-309.000.

Pieper, Henner, to Continental Gummi-Werke Aktiengesellschaft. Tread configuration for motor vehicle tires. 4,383,568, Cl. 152-209.00R.

Pierrot, Robert; Gautier, Francois; and Crochet, Pierre, to Thomson-CSF. Airborne interrogation system. 4,384,290, Cl. 343-6.00A.

Pilkington P.E. Limited: *See*—
Rogers, Philip J., 4,383,727, Cl. 350-1.300.

Pillifant, Harold E., Jr., to Pillifant, Harold E., Jr. Traffic barricade. 4,383,782, Cl. 404-6.000.

Pinckney Molded Plastics, Inc.: *See*—
Kreeger, Elsmer W., 4,383,611, Cl. 206-505.000.

Pinnell, Vesta P., Jr.: *See*—
Fitzner, Marcel; and Pinnell, Vesta P., Jr., 4,383,487, Cl. 108-27.000.

Pinto, Alwyn, to Imperial Chemical Industries PLC. Ammonia production process. 4,383,982, Cl. 423-359.000.

Pioneer Magnetics, Inc.: *See—*
Incledon, Stephen H.; and Wilkinson, Bruce L., 4,384,320, Cl. 363-25.000.

Pitney Bowes Inc.: *See—*
Calabrese, Richard A., 4,383,454, Cl. 74-337.500.
Kleinschmitt, David, 4,383,754, Cl. 355-8.000.

Plaisance, Thomas H.: *See—*
Gaske, Joseph E.; Plaisance, Thomas H.; and Pennanen, Hannu K., 4,384,070, Cl. 524-597.000.

Plan Hold Corporation: *See—*
Avella, Frank S.; and Matthews, Charles, 4,383,375, Cl. 33-437.000.

Plaskoliite, Inc.: *See—*
Gift, Warren H., 4,384,077, Cl. 525-81.000.

Plastiflex Company International: *See—*
Finley, Richard O., 4,383,555, Cl. 138-129.000.

Platt, Robert J., to Exxon Research and Engineering Co. Visbreaker letdown valve. 4,383,553, Cl. 138-46.000.

Plichta, George J.; and Unger, Thomas E., to Western Electric Company, Inc. Apparatus for coating surfaces of a substrate. 4,383,495, Cl. 118-406.000.

Plough, Inc.: *See—*
Russ, Julio G.; and Barrom, Donna L., 4,383,875, Cl. 156-69.000.

Pocket-Pak, Inc.: *See—*
Boshears, Donald L., 4,383,610, Cl. 206-387.000.

Podell, Allen F.; and Davis, Richard S., to Cuisinarts, Inc. Pasta extruder apparatus. 4,383,813, Cl. 425-204.000.

Pohl, Karl-Heinz: *See—*
Knickerbocker, Robert H.; and Pohl, Karl-Heinz, 4,384,172, Cl. 179-98.000.

Polaroid Corporation: *See—*
Frankle, Jonathan A.; and McCann, John J., 4,384,336, Cl. 382-49.000.
Kisler, Semyon, 4,383,752, Cl. 355-3.0CH.
Rogers, Howard G.; Gaudiana, Russell A.; Manello, Jeannette S.; and Sahatjian, Ronald A., 4,384,107, Cl. 528-183.000.

Polymer Research, Inc.: *See—*
McCurdy, J. L.; and Jarvis, Marvin A., 4,383,972, Cl. 422-131.000.

Post, Lawrence C.: *See—*
Seabloom, Clark G.; and Post, Lawrence C., 4,383,792, Cl. 414-563.000.

Posta, Joseph D.: *See—*
Cea, Theresa; Posta, Joseph D.; and Glass, Michael, 4,384,004, Cl. 426-3.000.

Postalia GmbH: *See—*
Gaus, Harry, 4,383,585, Cl. 177-210.0FP.

Postel, Michel: *See—*
Le Du, Antoine; Langlais, Frantz; Michaud, Christian; and Postel, Michel, 4,383,879, Cl. 156-307.700.

Potter, Charles W., to J. H. Fenner & Co. Ltd. Fluid seal with rib for rotary shaft. 4,383,691, Cl. 277-134.000.

Potterton International Limited: *See—*
Rackham, Michael; and Habgood, William C., 4,383,499, Cl. 122-18.000.

Potucek, Frank R., to Duo-Fast Corporation. Fastener strip and strip feeding apparatus. 4,383,608, Cl. 206-347.000.

Powell, Bruce E.; Mayer, Jerome F.; and Zakarian, John A., to Chevron Research Company. Hydrocracking to produce lube oil base stocks. 4,383,913, Cl. 208-59.000.

Powell, Thomas M., to General Motors Corporation. Cold starting system for alcohol fueled engine. 4,383,507, Cl. 123-179.00H.

PPG Industries, Inc.: *See—*
Nowakowski, Peter M.; Boberski, William G.; and Seiner, Jerome A., 4,383,866, Cl. 106-308.00B.

Pragnell, Robert G.: *See—*
Dalgoutte, David G.; Burke, Peter F. C.; Archer, John D.; and Pragnell, Robert G., 4,383,732, Cl. 350-96.200.

Precision Twist Drill & Machine Co.: *See—*
Gulbrandsen, Richard C., 4,383,784, Cl. 408-144.000.

Preckshot, Nancy E.: *See—*
Slechta, Leo J., Jr.; Manning, Bennett W.; Preckshot, Nancy E.; and Wagner, Howard M., 4,384,325, Cl. 364-200.000.

Prehodka, Barry V., to Aurora Products Canada Limited. Obstacle for toy vehicle track. 4,383,688, Cl. 273-86.00B.

Presley, Glen T., to Cross Manufacturing, Inc. Multiple pump load sensing system. 4,383,412, Cl. 60-430.000.

Presto Lock, Inc.: *See—*
Orabona, Joseph J., 4,383,425, Cl. 70-312.000.

Preuss, Reinhard; Grutze, Joachim; Beck, Ulrich; Pantke, Hellmuth; and Vogel, Karl, to Bayer Aktiengesellschaft. Process for improving the light fastness of polyamide dyeings with copper complexes of schiff bases or ortho-hydroxy benzophenone. 4,383,835, Cl. 8-602.000.

Price, James H.: *See—*
Mumford, George V.; and Price, James H., 4,383,619, Cl. 215-222.000.

Pricer, Wilbur D., to International Business Machines Corporation. Controlled power performance driver circuit. 4,384,216, Cl. 307-270.000.

Priesnitz, Uwe: *See—*
Maurer, Fritz; Riebel, Hans-Jochem; Priesnitz, Uwe; and Klauke, Erich, 4,383,949, Cl. 260-465.00G.

Prime, Kermit L., Jr. Electronic counter-counter-measure device. 4,384,292, Cl. 343-18.00E.

Pringiers, Pierre; and De Meersman, Clement, to Bergougnan - Benelux. Method and apparatus for determining static and dynamic characteristics from a viscous-elastic material. 4,383,450, Cl. 73-790.000.

Procter & Gamble Company, The: *See—*
Millisor, Daniel H., 4,384,008, Cl. 426-613.000.

Proctor, Robert H., to Murray Corporation. Grommet seal. 4,383,692, Cl. 277-178.000.

Produits Chimiques Ugine Kuhlmann: *See—*
Bertocchio, Rene; Foulletier, Louis; and Lantz, Andre, 4,383,929, Cl. 252-8.050.
Blaise, Jean; and Herisson, Jean-Louis, 4,384,092, Cl. 526-225.000.

Pross, Wilhelm: *See—*
Drope, Eckard; Jansky, Karl P.; Pross, Wilhelm; and Breuer, Wolfram, deceased, 4,384,283, Cl. 340-632.000.

Pruitt, Alfred B. Rotating head for air, gas and mud drilling. 4,383,577, Cl. 166-95.000.

Prus, Henryk. Process and machine for over-molding connectors on electrical conductors. 4,383,964, Cl. 264-237.000.

Pruyn, Wilhelmus A.; and Mohan, Anand, to Stork Screens B.V. Process of electroforming a screen, more particularly a cylindrical screen. 4,383,896, Cl. 204-11.000.

Pryor, Dale H. Wind turbine with adjustable air foils. 4,383,801, Cl. 416-17.000.

Pullen, Elaine A.: *See—*
Lewis, John D.; Keeling, Michael R.; Martin, Graham D.; and Pullen, Elaine A., 4,384,295, Cl. 346-75.000.

Purdue Research Foundation: *See—*
Fuchs, Phillip L., 4,384,127, Cl. 549-546.000.

Puskar, Frank J. Twirling baton. 4,383,387, Cl. 46-47.000.

Quackenbush, Carr L. W.: *See—*
Moschetti, Anthony P.; Smith, J. Thomas; Quackenbush, Carr L. W.; Lingertat, Helmut; and Nehring, Vincent W., 4,383,958, Cl. 264-65.000.

Quadratec Associates: *See—*
Lynch, M. Dee; and Bernklau, James W., 4,383,551, Cl. 137-593.000.

Quarve, Vernon K., to Graco Inc. Hydraulic cylinder and piston with automatic reciprocation valve. 4,383,475, Cl. 91-337.000.

Quesnoit, Jacques, to Thomson-Brandt. Refrigeration unit comprising compartments at different temperatures. 4,383,421, Cl. 62-333.000.

Quinby, Thomas C.: *See—*
Aaron, W. Scott; Kinser, Donald L.; and Quinby, Thomas C., 4,383,855, Cl. 419-19.000.

Qurnell, Frank D.; and Peloquin, Arthur V., to General Electric Company. Sample cutting device for irradiated components. 4,383,394, Cl. 51-241.00S.

R. J. Reynolds Tobacco Company: *See—*
Beard, Hoyt S.; Williard, Daniel G.; and Woempner, Marvin G., 4,383,538, Cl. 131-300.000.

Rackham, Michael; and Habgood, William C., to Potterton International Limited. Cast metal heat exchanger and method of formation. 4,383,499, Cl. 122-18.000.

Radtke, Richard R.: *See—*
Willis, Frederick G.; Radtke, Richard R.; Ellison, Joseph; Fozo, Steven R.; and Kern, Glenn A., 4,383,441, Cl. 73-117.300.

Raffel, Jack I.; and Yasaitis, John A., to Massachusetts Institute of Technology. Capacitor memory and methods for reading, writing, and fabricating capacitor memories. 4,384,299, Cl. 357-23.000.

Ragon, Danny L., to Deere & Company. Low ground pressure track shoe. 4,383,718, Cl. 305-53.000.

Rahdener Maschinenfabrik August Kolbus: *See—*
Rathert, Horst, 4,383,683, Cl. 270-58.000.

Raimondi S.p.A.: *See—*
Fontana, Alvaro, 4,383,694, Cl. 277-231.000.

Rakaczky, John A.: *See—*
Coates, Arthur D.; Donovan, William F.; Rakaczky, John A.; and Scott, Wayman E., 4,383,485, Cl. 102-364.000.

Rametsteiner, Karl, to Kunststoffwerk Karl Egger. Composition and product comprising a blend of chlorinated polyethylenes, a heat stabilzing agent a cross-linking agent and a foaming agent. 4,384,049, Cl. 521-90.000.

Rasberger, Michael, to Ciba-Geigy Corporation. Phosphite stabilizers. 4,383,950, Cl. 260-967.000.

Rasler, Raymond E. Invertible dual carrier for ladder-top use. 4,383,669, Cl. 248-210.000.

Rasshofer, Werner; Grogler, Gerhard; and Kopp, Richard, to Bayer Aktiengesellschaft. Process for the preparation of compounds having s-triazine units and epoxide groups. 4,384,102, Cl. 528-73.000.

Rastas, Jussi K.; Bjorkqvist, Lars-Goran; Gisler, Raija-Leena; and Liukkonen, Simo S., to Outokumpu Oy. Process for the recovery of zinc, copper and cadmium in the leaching of zinc calcine. 4,383,979, Cl. 423-36.000.

Ratcliffe, Ronald W.: *See—*
Christensen, Burton G.; Ratcliffe, Ronald W.; and Salzmann, Thomas N., 4,383,946, Cl. 260-245.20T.

Rathert, Horst, to Rahdener Maschinenfabrik August Kolbus. Apparatus for separating the bottom sheet of a stack or sheets. 4,383,683, Cl. 270-58.000.

Rauschenbach, Hans S.; Bashin, Saul; and Smith, Barry N., to TRW Inc. Ultra lightweight folding panel structure. 4,384,163, Cl. 136-245.000.

Rawlings, Herbert L.; and Reinert, Gerard E., to Mobay Chemical Corporation. Mineral-filled polycarbonate compositions of improved impact strength. 4,384,067, Cl. 524-493.000.

Rawlins, Stephen L. Liquid tension-sensitive gas valves. 4,383,543, Cl. 137-78.300.

Ray, Lynn L. Ball picker dolly. 4,383,695, Cl. 280-47.260.

Raytheon Company: *See*—
Cupolo, John; Salisbury, David J.; and Ouellette, Charles W., 4,383,831, Cl. 441-22.000.
RCA Corporation: *See*—
Colgan, John J., 4,384,233, Cl. 313-51.000.
Liu, Frank C., 4,384,306, Cl. 358-166.000.
Liu, Shing-Gong, 4,383,869, Cl. 148-1.500.
Nyman, Frederick R.; Stevens, Barry; and Ekstrom, Lincoln, 4,383,961, Cl. 264-107.000.
Schwarz, Hans G., 4,384,302, Cl. 358-27.000.
Red Devil Inc.: *See*—
Schotter, Richard D.; and Heinis, Robert P., 4,383,460, Cl. 83-886.000.
Rediffusion Simulation Incorporated: *See*—
Bordovsky, Robert, 4,383,740, Cl. 350-504.000.
Reed, Robert D.; Martin, Richard R.; and Goodnight, Hershel E., to John Zink Company. Fuel oil atomizer. 4,383,649, Cl. 239-429.000.
Reed, Samuel F.; and Hundermark, David L., to Rohm and Haas Company. Vinylbenzyl alcohol polymer beads and thermally cross-linked derivatives thereof. 4,384,095, Cl. 526-293.000.
Reese, Clifford J.: *See*—
Phelps, Thomas C.; and Reese, Clifford J., 4,383,908, Cl. 204-409.000.
Reese, Timothy E. Lifting liquid from boreholes. 4,383,803, Cl. 417-259.000.
Regie Nationale des Usines Renault: *See*—
Peilloud, Fernand; and Gladel, Gerard, 4,384,053, Cl. 523-153.000.
Reibling, Robert L., to Kidde Consumer Durables Corp. Task light. 4,384,318, Cl. 362-216.000.
Reinecke, Jean O.: *See*—
Reineman, Richard G.; and Reinecke, Jean O., 4,383,486, Cl. 108-2.000.
Reineman, Richard G.; and Reinecke, Jean O., to Rol-Fol Table, Inc. Desk for handicapped persons. 4,383,486, Cl. 108-2.000.
Reinert, Gerard E.: *See*—
Rawlings, Herbert L.; and Reinert, Gerard E., 4,384,067, Cl. 524-493.000.
Reis, Edmund: *See*—
Rosenfeldt, Bernd; Weller, Gerhard; and Reis, Edmund, 4,384,368, Cl. 455-602.000.
Reiss, Wolfgang: *See*—
Baer, Karl; Reiss, Wolfgang; Schroeder, Wolfgang; and Voges, Dieter, 4,384,147, Cl. 568-861.000.
Reiter, Udo; Lehmann, Helmut; Disteldorf, Walter; and Schenck, Hans-Uwe, to BASF Aktiengesellschaft. Thermosetting polycondensates containing amide and imide groups, and their use. 4,384,061, Cl. 524-104.000.
Remington Arms Company, Inc.: *See*—
MacMillan, John T., 4,383,469, Cl. 86-10.000.
Renga, James M., to Dow Chemical Company, The. Process for preparing tetrahydro-1,3-oxazin-2-ones. 4,384,115, Cl. 544-97.000.
Renishaw Electrical Limited: *See*—
McMurtry, David R., 4,384,332, Cl. 364-474.000.
Renton, Stanley, to Albright & Wilson Limited. De-watering of metal surfaces. 4,383,898, Cl. 204-35.00R.
Resonant Technology Company: *See*—
Gurries, Raymond A., 4,383,765, Cl. 366-76.000.
Rexnord Inc.: *See*—
Harwick, Warren J., 4,383,605, Cl. 198-781.000.
Reynolds, Alastair S.: *See*—
Crawford, Thomas M.; Reynolds, Alastair S.; and Young, Ivan R., 4,384,354, Cl. 375-10.000.
Reynolds, Kenneth: *See*—
Ferguson, Alan N.; and Reynolds, Kenneth, 4,384,034, Cl. 430-83.000.
Reynolds Metals Company: *See*—
Richards, Nolan E., 4,383,910, Cl. 204-243.00R.
Reynolds, Richard L. Free spinning laminated nut with automatic lock. 4,383,787, Cl. 411-221.000.
Rhone-Poulenc Agrochimie: *See*—
de Reinach Hirtzbach, Francois; and Borrod, Guy, 4,383,849, Cl. 71-88.000.
Gough, Stanley T. D., 4,383,991, Cl. 424-224.000.
Rhone-Poulenc Industries: *See*—
Bouverot, Noel; Medard, Paul; and Viale, Alain, 4,384,068, Cl. 524-493.000.
Goletto, Jean; and Coquard, Jean, 4,384,111, Cl. 528-339.300.
Rhudy, John S.: *See*—
Argabright, Perry A.; Rhudy, John S.; and Phillips, Brian L., 4,383,930, Cl. 252-8.55D.
Rice, Stephen H., to United States of America, National Aeronautics and Space Administration. Method for milling and drilling glass. 4,383,785, Cl. 409-131.000.
Richard, Daniel C., to Organisation Europeenne de Recherches Spatiales. Systems for folding and stabilizing solar panels. 4,384,164, Cl. 136-245.000.
Richard, Maurice E.; and Rinkleib, Helfried O., to International Business Machines Corp. Single reel tape cartridge with leader block door seal. 4,383,660, Cl. 242-197.000.
Richards, Nolan E., to Reynolds Metals Company. Alumina reduction cell. 4,383,910, Cl. 204-243.00R.
Richman, David W., to McDonnell Douglas Corporation. System for hydrodynamic compensation for electrophoresis crescent distortion. 4,383,905, Cl. 204-180.00R.
Ricoh Company, Ltd.: *See*—
Sakai, Katsuo, 4,384,033, Cl. 430-42.000.
Riddel, John W., to General Motors Corporation. Diesel exhaust cleaner with burner vortex chamber. 4,383,411, Cl. 60-303.000.
Rider, Edward W., Jr., to Genpak Corporation. Forming and delivering stackable articles. 4,383,954, Cl. 264-40.500.
Riebel, Hans-Jochem: *See*—
Jautelat, Manfred; Arlt, Dieter; Lantzsch, Reinhard; Fuchs, Rainer; Riebel, Hans-Jochem; Schroder, Rolf; and Harnisch, Horst, 4,384,114, Cl. 542-441.000.
Maurer, Fritz; Riebel, Hans-Jochem; Priesnitz, Uwe; and Klauke, Erich, 4,383,949, Cl. 260-465.00G.
Riel, Frank J.: *See*—
Beggs, Stanley L.; Riel, Frank J.; and Lawson, D. W. R., 4,384,020, Cl. 428-138.000.
Riguez Associates: *See*—
Trujillo, Jose A., 4,383,864, Cl. 106-281.00R.
Rinderle, Heinz: *See*—
Malinowski, Christopher W.; and Rinderle, Heinz, 4,384,365, Cl. 455-183.000.
Ringdal, Lars: *See*—
Sie, Swan L.; and Ringdal, Lars, 4,383,468, Cl. 86-1.00R.
Rinkleib, Helfried O.: *See*—
Richard, Maurice E.; and Rinkleib, Helfried O., 4,383,660, Cl. 242-197.000.
Rippel, Wally E., to California Institute of Technology. Unity power factor switching regulator. 4,384,321, Cl. 363-124.000.
Ritter, Gunter, to Tetra Werke Dr. rer. nat. Ulrich Baensch Gesellschaft mit beschrankter Haftung. Treatment of water, especially water for aquaria. 4,383,924, Cl. 210-662.000.
Robert Bosch GmbH: *See*—
Gmelin, Karl; and Peters, Klaus-Jurgen, 4,383,513, Cl. 123-454.000.
Hamisch, Hans-Joachim; Boruschewitz, Manfred; and Gast, Theodor, 4,383,434, Cl. 73-35.000.
Schelling, Bernd; and Flaig, Ulrich, 4,384,251, Cl. 324-207.000.
Roberts, John S., to U.S. Philips Corporation. Method of growing a doped III–V alloy layer by molecular beam epitaxy utilizing a supplemental molecular beam of lead. 4,383,872, Cl. 148-175.000.
Robertshaw Controls Company: *See*—
Beaman, Norman V.; and Sellers, Gary B., 4,383,444, Cl. 73-304.00C.
Robertson, Gary W.: *See*—
Pfieffer, Gerald R.; Robertson, Gary W.; Thompson, Charles H.; and Williams, Jerry D., 4,383,637, Cl. 229-38.000.
Robins, Seymour. Disposable traction splint. 4,383,526, Cl. 128-87.00R.
Robinson, Donald N.: *See*—
Benzinger, William D.; and Robinson, Donald N., 4,384,047, Cl. 521-64.000.
Robson, Thomas: *See*—
Fedder, Richard C.; Schafner, George C.; Robson, Thomas; and McMahon, Thomas F., 4,383,755, Cl. 355-11.000.
Roccati, Sergio; and Cecini, Lino, to F.LLI Pagnoni S.p.A. Apparatus for the simultaneous closing of the two openings of a press for manufacturing wood chipboard or fibreboard or their substitutes. 4,383,814, Cl. 425-338.000.
Rock, Gail A. Factor VIII concentrates prepared from heparinized plasma by the application of a cold precipitation technique. 4,383,989, Cl. 124-101.000.
Roeder, Eckhard; and Flake, Wolfgang, to Roeder, Eckhard. Method for non-destructively testing construction elements. 4,383,446, Cl. 73-579.000.
Rogers, Howard G.; Gaudiana, Russell A.; Manello, Jeannette S.; and Sahatjian, Ronald A., to Polaroid Corporation. Polyamide comprising substituted biphenylene or substituted stilbene radicals. 4,384,107, Cl. 528-183.000.
Rogers, Philip J., to Pilkington P.E. Limited. Infra-red optical systems. 4,383,727, Cl. 350-1.300.
Rogers, Richard B.; Claus, Jon S.; and Egli, Eric A., to Dow Chemical Company, The. 2-Amino-6-fluoronicotinic acids and derivatives thereof and methods of herbicidal use. 4,383,851, Cl. 71-94.000.
Rohm and Haas Company: *See*—
Reed, Samuel F.; and Hundermark, David L., 4,384,095, Cl. 526-293.000.
Rohr Industries, Inc.: *See*—
Beggs, Stanley L.; Riel, Frank J.; and Lawson, D. W. R., 4,384,020, Cl. 428-138.000.
Rokhman, Max G. Strip material area-meter. 4,384,339, Cl. 364-564.000.
Rol-Fol Table, Inc.: *See*—
Reineman, Richard G.; and Reinecke, Jean O., 4,383,486, Cl. 108-2.000.
Ronan, Thomas O., to Holiday Inns, Inc. Anti-shim safety device for preventing wrongful disengagement of door latches. 4,383,709, Cl. 292-346.000.
Rosenbaum, Walter S.; and Tannenbaum, Alan R., to International Business Machines Corporation. Retrieval of related linked linguistic expressions including synonyms and antonyms. 4,384,329, Cl. 364-300.000.
Rosenfeldt, Bernd; Weller, Gerhard; and Reis, Edmund, to Siemens Aktiengesellschaft. Insulated insert with high electric strength. 4,384,368, Cl. 455-602.000.
Roston, Stewart A. Orthopedic support apparatus for infants. 4,383,713, Cl. 297-219.000.
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Roto-Finish Company, Inc.: *See*—
Balz, Gunther W., 4,383,967, Cl. 264-310.000.

Rouffy, Jean C.: *See*—
Legrand, Jacques; and Rouffy, Jean C., 4,383,907, Cl. 204-426.000.

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Rozell, William J.: *See*—
Gillich, Thomas N.; Walls, John E.; Wanat, Stanley F.; and Rozell, William J., 4,383,897, Cl. 204-33.000.

Rozmus, Walter J., to Kelsey-Hayes Company. Closed loop leaching system. 4,383,884, Cl. 156-642.000.

Rubio, Marcelino; and Mizell, James A. Process for fabricating a closed, foam-filled, reinforced polyester resin shell article. 4,383,955, Cl. 264-46.600.

Rucker, Dieter: *See*—
Kiefer, Gunther; and Rucker, Dieter, 4,383,815, Cl. 425-387.100.

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Russ, Julio G.; and Barrom, Donna L., to Plough, Inc. Method for making cosmetic pencils. 4,383,875, Cl. 156-69.000.

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Bucksch, Gunter; and Tyras, Herbert, 4,384,082, Cl. 525-369.000.
Moraw, Klaus; and Paul, Hans-Gunther, 4,384,054, Cl. 523-156.000.

Rutherford, Joseph P. Foliar growth promoting mixture. 4,383,845, Cl. 71-16.000.

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Ryan, James M.; and Holmes, Arthur S., to Koch Process Systems, Inc. Distillative separation of carbon dioxide from hydrogen sulfide. 4,383,841, Cl. 62-17.000.

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Long, Nicholas R.; Ryan, Joseph L.; Stafford, John P.; and Watkins, Richard R., 4,384,285, Cl. 340-723.000.

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S&C Electric Company: *See*—
Hall, Walter J.; and Jarosz, John M., 4,384,185, Cl. 200-148.00R.

Saadi, Moussa; Bouchta, Rabah; Cha, Chang Y.; Sdiqui, Mohamed; and Barodi, Bachir, to Bureau de Recherches et de Participations Minieres. Processes of pyrolysis and treatment of pyrolysis residues. 4,383,912, Cl. 208-11.00R.

Sadler, Charlton. Solar heater. 4,383,959, Cl. 264-86.000.

Sahatjian, Ronald A.: *See*—
Rogers, Howard G.; Gaudiana, Russell A.; Manello, Jeannette S.; and Sahatjian, Ronald A., 4,384,107, Cl. 528-183.000.

Saito, Takashi; Mochizuki, Masafumi; and Hirano, Toshio, to Victor Company of Japan, Ltd. Rotary recording medium reproducing apparatus. 4,384,352, Cl. 369-77.000.

Sakaguchi, Katsuyoshi: *See*—
Kubo, Masayoshi; Hasegawa, Akira; Sakaguchi, Katsuyoshi; and Fukuda, Shozo, 4,383,808, Cl. 425-47.000.

Sakai, Katsuo, to Ricoh Company, Ltd. Process of synthesizing and recording images. 4,384,033, Cl. 430-42.000.

Sakai, Minoru: *See*—
Ohta, Masutomi; and Sakai, Minoru, 4,384,304, Cl. 358-147.000.

Sakaki, Yasunori, to StraPack Shimojima Co., Ltd. Strapping machine. 4,383,881, Cl. 156-361.000.

Sakamoto, Masafumi: *See*—
Sato, Kazuo; and Sakamoto, Masafumi, 4,384,226, Cl. 310-89.000.

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Sakharnov, Vasily A.: *See*—
Paton, Boris E.; Lebedev, Vladimir K.; Kuchuk-Yatsenko, Sergei I.; Sakharnov, Vasily A.; Galian, Boris A.; Asoiants, Grigory B.; Vorobei, Mikhail F.; and Solodovnikov, Sergei A., 4,383,786, Cl. 409-299.000.

Sakuma, Hiraku, to Nippon Electric Co., Ltd. Inverter circuits using insulated gate field effect transistors. 4,384,287, Cl. 340-771.000.

Sakurada, Nobuaki: *See*—
Shinoda, Nobuhiko; and Sakurada, Nobuaki, 4,383,749, Cl. 354-23.00D.

Salisbury, David J.: *See*—
Cupolo, John; Salisbury, David J.; and Ouellette, Charles W., 4,383,831, Cl. 441-22.000.

Salmon, Roger: *See*—
Cartwright, David; Salmon, Roger; and Williams, Alfred G., 4,384,135, Cl. 562-435.000.

Salomon, George P. J., to S.A. Etablissements Francois Salomon & Fils. Safety binding for a ski. 4,383,702, Cl. 280-611.000.

Salzmann, Thomas N.: *See*—
Christensen, Burton G.; Ratcliffe, Ronald W.; and Salzmann, Thomas N., 4,383,946, Cl. 260-245.20T.

Sanders Associates, Inc.: *See*—
Pagliarini, John A., Jr.; and White, Ronald P., 4,384,351, Cl. 367-175.000.

Sandoz, Inc.: *See*—
Kathawala, Faizulla G.; and Heider, John G., 4,384,124, Cl. 548-495.000.

Sands, Steven D.: *See*—
Bermudez, Mauricio; Klimpel, Richard R.; and Sands, Steven D., 4,384,010, Cl. 426-618.000.

Sankey, Edwin W., to Dresser Industries, Inc. Frame structure for track-type vehicle. 4,383,794, Cl. 414-694.000.

Sano, Hiromi; and Suzuki, Masatoshi, to Nippondenso Co., Ltd. Device for sensing oxygen concentration in an exhaust gas. 4,383,906, Cl. 204-416.000.

Sargent Industries, Inc.: *See*—
Smith, Fred T., 4,383,790, Cl. 414-293.000.
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Sasaki, Jun, to Fuji Photo Film Co., Ltd. Process for producing liquid developer for electrostatic photography using selected solvents. 4,384,036, Cl. 430-113.000.

Sata, Tekeo; Takamura, Masayuki; Yamagishi, Tomoo; Hoshi, Toshiharu; and Iijima, Kenzaburo, to Nippon Gakki Seizo Kabushiki Kaisha. Method for manufacturing multilayer head core. 4,383,856, Cl. 419-6.000.

Satake, Yoshikatsu: *See*—
Ohya, Masaki; Kobayashi, Akio; Ogiwara, Takeo; and Satake, Yoshikatsu, 4,384,078, Cl. 525-296.000.

Sato, Kazuo; and Sakamoto, Masafumi, to Nihon Servo Kabushiki Kaisha. Small-sized electric motor. 4,384,226, Cl. 310-89.000.

Sato, Michio: *See*—
Nakazawa, Koji; Sato, Michio; Kasai, Shin; Kawaguchi, Yutaka; and Kikuchi, Toshiaki, 4,383,653, Cl. 242-43.00R.

Sato, Motoyuki: *See*—
Honda, Tetsuro; Sato, Motoyuki; and Itagaki, Toyoo, 4,383,703, Cl. 280-682.000.

Sato, Shimio: *See*—
Morita, Minoru; Sato, Shimio; Hashimoto, Takao; and Kitaoka, Yoji, 4,383,911, Cl. 208-10.000.

Sato, Takashi: *See*—
Shimamoto, Susumu; Ando, Toshinari; Tsuji, Hiroshi; Sato, Takashi; and Hattutori, Yasuhide, 4,384,265, Cl. 335-216.000.

Saurenman, Phillip E.; and Casler, William A. Method of forming an interlocking metal joint. 4,383,354, Cl. 29-522.00R.

Sawada, Kozo: *See*—
Hashimoto, Masashi; Aratani, Matsuhiko; and Sawada, Kozo, 4,383,945, Cl. 260-239.00A.

Schaefer, Donald D.: *See*—
Gianni, Sebastian J.; and Schaefer, Donald D., 4,383,802, Cl. 417-12.000.

Schaefer, Peter; and Mangold, Dietrich, to BASF Aktiengesellschaft. Preparation of α-bromoacetophenone-oxime-ethers. 4,384,141, Cl. 564-256.000.

Schafner, George C.: *See*—
Fedder, Richard C.; Schafner, George C.; Robson, Thomas; and McMahon, Thomas F., 4,383,755, Cl. 355-11.000.

Schatschneider, Peter, to Bloom Engineering (Europa) GmbH. Refractory sheathing made from insulating shapes for vertical support members in heat-treating furnaces. 4,383,822, Cl. 432-247.000.

Schatteman, Etienne A. M.; and Agostini, Luigi, to Starr S. A. Cassette changer apparatus. 4,384,310, Cl. 360-92.000.

Schelling, Bernd; and Flaig, Ulrich, to Robert Bosch GmbH. Pulse-duty-cycle-type evaluation circuit for a variable inductance. 4,384,251, Cl. 324-207.000.

Schellstede, Hermann: *See*—
Allerding, Volker; Borchers, Heinz; and Schellstede, Hermann, 4,383,666, Cl. 244-118.500.

Schenck, Hans-Uwe: *See*—
Reiter, Udo; Lehmann, Helmut; Disteldorf, Walter; and Schenck, Hans-Uwe, 4,384,061, Cl. 524-104.000.

Schildmann, Hans W.: *See*—
Bochinski, Rolf; Eimer, Klaus; Schildmann, Hans W.; and Schmitz, Gunther, 4,383,346, Cl. 15-104.06R.

Schilke, Peter W.: *See*—
Dembowski, Peter V.; and Schilke, Peter W., 4,383,854, Cl. 419-1.000.

Schillke, Peter; and Walls, Robert R., to Allied Corporation. Solder-coating apparatus. 4,383,494, Cl. 118-50.000.

Schlagheck, Werner: *See*—
Hellwig, Paul; and Schlagheck, Werner, 4,384,236, Cl. 313-318.000.

Schleimann-Jensen, C. Arne, to TII Industries. Procedure for manufacturing gas-filled discharge devices. 4,383,723, Cl. 445-54.000.

Schliep, Edward J. Weight moving device. 4,383,684, Cl. 272-120.000.

Schlumberger Technology Corporation: *See*—
Flaum, Charles, 4,384,205, Cl. 250-265.000.

Schmidt, Adolf; Kolb, Gunter; and Clarenz, Werner, to Bayer Aktiengesellschaft. Aqueous dispersions based on (meth)acrylic acid alkyl ester polymers with two pronounced, substantially non-overlapping peaks in the particle size distribution within specific particle size ranges, and a process for the preparation and use thereof. 4,384,056, Cl. 523-221.000.

Schmidt, Gerhard, to Hein, Lehmann AG. Screen bottom system. 4,383,919, Cl. 209-399.000.

Schmidt, Robert J., to UOP Inc. Hydration of olefins. 4,384,148, Cl. 568-907.000.

Schmidt, Viktor: *See*—
Ahrendt, Gerhard; Benz, Roland; Engenhart, Reinhold; and Schmidt, Viktor, 4,383,655, Cl. 242-47.000.

Schmitz, Gunther: *See*—
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Schneider, Friedhelm: *See*—
Niemoller, Gerhard; Stromberg, Wilfried; and Schneider, Friedhelm, 4,383,603, Cl. 198-731.000.

Schnitzius, Klaus, to Stabilus GmbH. Gas spring having three different damping-rate stages. 4,383,595, Cl. 188-281.000.

Schoeller, Felix, Jr.: *See*—
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Schornig, Eberhard; and Kuemmerl, Klaus, to Hoechst Aktiengesellschaft. Developing apparatus with a rotatable brush having a protective hood. 4,383,751, Cl. 354-322.000.
Schorr, Wolfgang, to Siemens Aktiengesellschaft. Method for preventing remanence phenomena from interfering with magnetic field sensing systems and a device for implementation of the method. 4,383,535, Cl. 128-777.000.
Schotter, Richard D.; and Heinis, Robert P., to Red Devil Inc. Self aligning pillar post for glass cutters. 4,383,460, Cl. 83-886.000.
Schouteeten, Alain; Christidis, Yani; and Vallejos, Jean-Claude, to Societe Francaise Hoechst. Process for preparation of hydroxyarylglyoxylic acids and their alkaline salts, and application thereof to preparation of sodium parahydroxyphenylglyoxylate. 4,384,137, Cl. 562-463.000.
Schroder, Rolf: *See*—
Jautelat, Manfred; Arlt, Dieter; Lantzsch, Reinhard; Fuchs, Rainer; Riebel, Hans-Jochem; Schroder, Rolf; and Harnisch, Horst, 4,384,114, Cl. 542-441.000.
Schroeder, Joris: *See*—
Masel, Marvin; Meehan, Ralph J.; and Schroeder, Joris, 4,384,275, Cl. 340-347.00P.
Schroeder, Wolfgang: *See*—
Baer, Karl; Reiss, Wolfgang; Schroeder, Wolfgang; and Voges, Dieter, 4,384,147, Cl. 568-861.000.
Schroeter, Siegfried H.: *See*—
Moore, James E.; Orkin, Ona V.; and Schroeter, Siegfried H., 4,384,026, Cl. 428-412.000.
Schubert & Salzer Maschinenfabrik Aktiengesellschaft: *See*—
Oexler, Rudolf; and Grimm, Eberhard, 4,383,406, Cl. 57-406.000.
Schucker, Thomas R., to Allis-Chalmers Corporation. Singular mounted servomotor system for bulb turbines. 4,383,798, Cl. 415-150.000.
Schueler, Jerry L.: *See*—
Hanson, Wayne H.; Heyl, Derrick L.; Krause, Bradley D.; Kravik, Richard C.; Lawson, Gerald P.; and Schueler, Jerry L., 4,383,542, Cl. 134-105.000.
Schuler, Roland: *See*—
Kovacs, Zoltan; and Schuler, Roland, 4,384,101, Cl. 528-73.000.
Schulte, Hans; and Voges, Christoph, to Dynamit Nobel Aktiengesellschaft. Pyrotechnic composition for delay elements. 4,383,874, Cl. 149-21.000.
Schulz, Johann G.; and Margosian, Daniel, to Gulf Research & Development Company. Process for preparing organic acids. 4,384,134, Cl. 562-410.000.
Schurman, John R. Cervical brace. 4,383,523, Cl. 128-75.000.
Schwabe, Peter: *See*—
Wingler, Frank; Leusner, Bernd; Schwabe, Peter; and Geyer, Otto-Christian, 4,384,097, Cl. 526-328.500.
Schwarz, Hans G., to RCA Corporation. Composite video signal limiter. 4,384,302, Cl. 358-27.000.
Schwarz, Rudolf; Kleinschmit, Peter; Liedtke, Christa; and Wolff, Siegfried, to Degussa Aktiengesellschaft. Bis-(silylethyl)-oligosulphides and process for their production. 4,384,132, Cl. 556-427.000.
Schwinn Bicycle Company: *See*—
Kiang, Nai-Wen, 4,383,625, Cl. 224-39.000.
SCM Corporation: *See*—
Sherwood, Joseph C.; and Brunbeck, Richard T., 4,383,928, Cl. 210-724.000.
Scott, F. Brantley; and Burton, John H., to American Medical Systems, Inc. Implantable penile prosthetic cylinder with inclusive fluid reservoir. 4,383,525, Cl. 128-79.000.
Scott Paper Company: *See*—
Grant, Clyde P.; Look, Merton A.; and Lowe, Richard M., 4,384,035, Cl. 430-103.000.
Southerling, H. Edward; and Wills, Charles H., 4,383,600, Cl. 198-347.000.
Scott, Paul E.; Willich, George W.; and Jemison, William W., Jr., to Vulcan Materials Company. Wall brush. 4,383,715, Cl. 299-88.000.
Scott, Wayman E.: *See*—
Coates, Arthur D.; Donovan, William F.; Rakaczky, John A.; and Scott, Wayman E., 4,383,485, Cl. 102-364.000.
Scraggs, Charles R.; and Northcutt, Paul E. Vehicle rear surface washing system. 4,383,344, Cl. 15-53.00A.
Sdiqui, Mohamed: *See*—
Saadi, Moussa; Bouchta, Rabah; Cha, Chang Y.; Sdiqui, Mohamed; and Barodi, Bachir, 4,383,912, Cl. 208-11.00R.
Seabloom, Clark G.; and Post, Lawrence C., to Seabloom, Clark G. Crane for detachable mounting on a truck bed. 4,383,792, Cl. 414-563.000.
Sears, Billy D.: *See*—
Wilger, John F.; Nakano, Gregory S.; Orillo, Stephen, Jr.; Medrano, Alfred; Sears, Billy D.; and Uyetake, Tadao, 4,383,395, Cl. 51-245.000.
Seeney, Charles E.; Kraemer, John F.; and Ingebrigtsen, Janis, to International Minerals & Chemical Corp. Metal silico-phosphate binders and foundry shapes produced therefrom. 4,383,861, Cl. 106-38.300.
Segawa, Makoto; and Ariizumi, Shoji, to Tokyo Shibaura Denki Kabushiki Kaisha. MOS Transistor circuit with a power-down function. 4,384,220, Cl. 307-450.000.
Seiderman, Abe. Control apparatus for automotive air conditioner. 4,383,420, Cl. 62-323.400.
Seifert, Peter: *See*—
Chupka, David E.; and Seifert, Peter, 4,383,918, Cl. 209-234.000.
Seiner, Jerome A.: *See*—
Nowakowski, Peter M.; Boberski, William G.; and Seiner, Jerome A., 4,383,866, Cl. 106-308.00B.
Self-Powered Lighting Inc.: *See*—
Hegarty, William, 4,383,382, Cl. 40-545.000.
Sellers, Gary B.: *See*—
Beaman, Norman V.; and Sellers, Gary B., 4,383,444, Cl. 73-304.00C.
Seragnoli, Enzo, to G.D Societa' per Azioni. Deviator device for webs, particularly paper webs. 4,383,633, Cl. 226-194.000.
Setra Systems, Inc.: *See*—
Lee, Shih-Ying, 4,383,586, Cl. 177-229.000.
Sevy, Danny R.: *See*—
Eakew, Douglas H.; Marowski, Raymond M.; and Sevy, Danny R., 4,383,777, Cl. 400-314.600.
Shackleton, John S., to United Tire and Rubber Co. Limited. Barrier sheet and method of manufacturing same. 4,383,876, Cl. 156-110.00R.
Shalashov, Jury F.; Butkin, Vladimir D.; and Petukhov, Vadim D. Tool for drilling boreholes. 4,383,581, Cl. 173-16.000.
Sharp Kabushiki Kaisha: *See*—
Funada, Fumiaki; and Matsmura, Masataka, 4,383,738, Cl. 350-349.000.
Hayakawa, Masao; Maeda, Takamichi; and Oda, Mituwo, 4,383,363, Cl. 29-847.000.
Hibino, Shinichi; and Nakayama, Keiji, 4,383,737, Cl. 350-347.000.
Juso, Hiromi; Tsuji, Shigeki; and Maeda, Shigemi, 4,384,284, Cl. 340-706.000.
Sheepskin Autoseat Corporation: *See*—
Kaganas, Jose, 4,383,712, Cl. 297-219.000.
Shell Oil Company: *See*—
Kim, Leo; and Ash, Stuart G., 4,384,044, Cl. 435-101.000.
Kruka, Vitold R.; and Esparza, Joe O., 4,383,783, Cl. 405-171.000.
Slaugh, Lynn H., 4,384,154, Cl. 585-415.000.
Tang, Sunny C., 4,384,146, Cl. 568-861.000.
van Erp, Willibrord A.; and Velthuis, Otto M., 4,383,981, Cl. 423-326.000.
Shepherd, James P., to Celanese Corporation. Photochemical epoxidation. 4,383,904, Cl. 204-162.00R.
Sherman, D. Howard. Method of controlling the surface integrity of piled coal. 4,383,971, Cl. 422-40.000.
Sherwood, Joseph C.; and Brunbeck, Richard T., to SCM Corporation. Treatment of water contaminated with dispersed resin. 4,383,928, Cl. 210-724.000.
Sherwood Medical Company: *See*—
Aquino, Richard A., 4,383,615, Cl. 211-60.00R.
Shibuya, Hisatake, to ESP Co., Ltd. String bridge of electric guitar. 4,383,466, Cl. 84-313.000.
Shigeta, Yoshihiro: *See*—
Kawamura, Masaharau; Uchidoi, Masanori; Shigeta, Yoshihiro; Sugiura, Yoji; and Yamamoto, Hiroshi, 4,383,745, Cl. 354-149.000.
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Shiki, Haruo; and Ohmori, Toru, to Nippon Electric Co., Ltd. Space-diversity broad-band digital radio receiver. 4,384,358, Cl. 375-100.000.
Shimamoto, Susumu; Ando, Toshinari; Tsuji, Hiroshi; Sato, Takashi; and Hattutori, Yasuhide, to Mitsubishi Denki Kabushiki Kaisha; and Japan Atomic Energy Research Institute. Superconductive coil. 4,384,265, Cl. 335-216.000.
Shimazaki, Masami: *See*—
Ohashi, Takehisa; Shimazaki, Masami; Nomura, Kenji; Kan, Kazunori; and Watanabe, Kiyoshi, 4,384,139, Cl. 562-512.000.
Shimizu, Yoshiaki: *See*—
Miike, Akira; Shimizu, Yoshiaki; Tatano, Toshio; and Watanabe, Katsuyuki, 4,384,042, Cl. 435-25.000.
Shimogawa, Toshiaki: *See*—
Morita, Masayuki; Kawaharazaki, Takashi; and Shimogawa, Toshiaki, 4,383,658, Cl. 242-107.000.
Shimono, Muchiji: *See*—
Tsubata, Noritaka; and Shimono, Muchiji, 4,383,558, Cl. 139-384.00B.
Shimotori, Kazuhiro; Ichiyama, Toshio; and Tobita, Yooichi, to Mitsubishi Denki Kabushiki Kaisha. Substrate bias generator. 4,384,218, Cl. 307-304.000.
Shin-Etsu Chemical Co., Ltd.: *See*—
Ishihara, Toshinobu; Yamamoto, Akira; and Taguchi, Kenichi, 4,384,158, Cl. 585-534.000.
Takamizawa, Minoru; Kimura, Shigeo; Somezawa, Masashi; Kobayashi, Kunio; Inoue, Yoshio; and Yoshioka, Hiroshi, 4,384,100, Cl. 528-41.000.
Shinoda, Nobuhiko; and Sakurada, Nobuaki, to Canon Kabushiki Kaisha. Automatic exposure control system. 4,383,749, Cl. 354-23.00D.
Shinshu Seiki Kabushiki Kaisha: *See*—
Arai, Kenichiro, 4,383,773, Cl. 400-156.300.
Shiomi, Yasushi: *See*—
Miyazaki, Haruhiko; Shiomi, Yasushi; Fujitsu, Satoru; Masunaga, Katsuro; and Yanagisawa, Hiroshi, 4,384,133, Cl. 560-204.000.
Shono, Tatsuya; and Matsumura, Yoshihiro, to Otsuka Kagaku Yakuhin Kabushiki Kaisha. Process for preparing cyclopentenone derivatives. 4,384,144, Cl. 568-347.000.
Shotwell, Allen M. Improved paint guide. 4,383,496, Cl. 118-504.000.
Showa Denko Kabushiki Kaisha: *See*—
Numamoto, Yukio; and Kasai, Juichi, 4,383,376, Cl. 34-9.000.
Numamoto, Yukio; and Kasai, Juichi, 4,383,376, Cl. 34-9.000.

Shreve, James S. Electrically-controlled damper. 4,383,641, Cl. 236-49.000.

Shriver, Joe E.: *See*—
Osborne, Donald L.; Shriver, Joe E.; and McClure, John R., 4,383,652, Cl. 241-88.400.

Shuster, Edward J.: *See*—
Britten-Kelly, Michael R.; Shuster, Edward J.; and Hansen, Odd, 4,383,943, Cl. 252-522.00R.

Sie, Swan L.; and Ringdal, Lars, to Eurometaal N.V.; and Sinterplast Etabl. Method of producing fragmentable casings and product obtained. 4,383,468, Cl. 86-1.00R.

Siegel, Leon S.; and Holman, Charles O., to Combustion Engineering, Inc. Capacitance circuit for level measurement. 4,383,445, Cl. 73-304.00C.

Siegle, Peter: *See*—
Berendes, Otto; and Siegle, Peter, 4,384,145, Cl. 568-391.000.

Siemens Aktiengesellschaft: *See*—
Franke, Kurt, 4,384,359, Cl. 378-9.000.
Opitz, Heinrich; Montag, Bernhard; and Urban, Gerd, 4,384,039, Cl. 430-422.000.
Rosenfeldt, Bernd; Weller, Gerhard; and Reis, Edmund, 4,384,368, Cl. 455-602.000.
Schorr, Wolfgang, 4,383,535, Cl. 128-777.000.
Witte, Hans H., 4,383,730, Cl. 350-96.160.

Siemon Company, The: *See*—
Knickerbocker, Robert H.; and Pohl, Karl-Heinz, 4,384,172, Cl. 179-98.000.

Sigmon, Bernard E.: *See*—
King, Charles T.; and Sigmon, Bernard E., 4,384,367, Cl. 455-325.000.

Silverman, Richard: *See*—
Briefer, Dennis K.; Flitterman, Michael; and Silverman, Richard, 4,384,173, Cl. 179-115.5PV.

Simon, Jacques; and Defaut, Bernard, to Thomson-CSF. Opto-electronic head incorporating a very small diameter optical fibre portion and connection device incorporating such a head. 4,383,731, Cl. 350-96.180.

Singer Company, The: *See*—
Bennett, William S., 4,384,338, Cl. 364-522.000.

Sinterplast Etabl.: *See*—
Sie, Swan L.; and Ringdal, Lars, 4,383,468, Cl. 86-1.00R.

Sisti, Giorgio; Galli, Mario; and Trestianu, Sorin, to Carlo Erba Strumentazione S.p.A. Method and device for vaporization injection of a liquid sample for gas chromatographic analysis. 4,383,839, Cl. 55-67.000.

Skatsche, Othmar; and Obermayer, Bertram, to List, Hans. Water-cooled internal combustion engine using hydraulic-oil lubrication and cooling-water pump. 4,383,502, Cl. 123-41.440.

SKF Kugellagerfabriken GmbH: *See*—
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; Kunkel, Heinrich; Dobhan, Herbert; Horling, Peter; and Klupfel, Norbert, 4,383,670, Cl. 249-60.000.

Skinner, Robert T. J., to Lucas Industries Limited. Fuel pumping apparatus. 4,383,806, Cl. 417-462.000.

Skraba, Frank, to Phillips Petroleum Company. Prequench of cracked stream to avoid deposits in downstream heat exchangers. 4,384,160, Cl. 585-650.000.

Slagteriernes Forskningsinstitut: *See*—
Bjarno, Ole-Christian, 4,384,206, Cl. 250-339.000.

Slater Steel Industries Limited: *See*—
Nigol, Olaf; and Houston, Herbert J., 4,384,166, Cl. 174-42.000.

Slaugh, Lynn H., to Shell Oil Company. Conversion of isobutene to aromatics. 4,384,154, Cl. 585-415.000.

Slechta, Leo J., Jr.; Manning, Bennett W.; Preckshot, Nancy E.; and Wagner, Howard M., to Sperry Corporation. Apparatus and method for searching a data base using variable search criteria. 4,384,325, Cl. 364-200.000.

Sloan, Albert E., to Technical Operations Limited. Regenerative braking system for three-terminal d.c. motor. 4,384,240, Cl. 318-255.000.

Slocum, Patricia K. Robe adapted for incontinent individuals. 4,383,335, Cl. 2-114.000.

Sloin, Leon. Apparatus for continuous extrusion without reverse flow of material. 4,383,764, Cl. 366-75.000.

Sluyter, Robert J.: *See*—
Duifhuis, Hendrikus; Willems, Leonardus F.; and Sluyter, Robert J., 4,384,335, Cl. 364-513.000.

Smith, Avery B.; and Hayes, Mark J. Method for removing metal ions and other pollutants from aqueous solutions and moist gaseous streams. 4,383,901, Cl. 204-152.000.

Smith, Barry N.: *See*—
Rauschenbach, Hans S.; Bashin, Saul; and Smith, Barry N., 4,384,163, Cl. 136-245.000.

Smith, Fergus S. Snow making nozzle. 4,383,646, Cl. 239-14.000.

Smith, Fred T., to Sargent Industries, Inc. Refuse compaction apparatus. 4,383,790, Cl. 414-293.000.

Smith, Fred T., to Sargent Industries, Inc. Refuse compaction method. 4,383,796, Cl. 414-786.000.

Smith, Harry A., to Dow Chemical Company, The. Preparation of nylon-6 with reduced levels of water-extractable material. 4,384,085, Cl. 526-62.000.

Smith, J. Thomas: *See*—
Moschetti, Anthony P.; Smith, J. Thomas; Quackenbush, Carr L. W.; Lingertat, Helmut; and Nehring, Vincent W., 4,383,958, Cl. 264-65.000.

Smith, Robert H., to Atlantic Richfield Company. Efficient methane production with metal hydrides. 4,383,837, Cl. 48-197.00R.

Smithkline Beckman Corporation: *See*—
Bondinell, William E.; Lafferty, John J.; and Zirkle, Charles L., 4,383,999, Cl. 424-266.000.

Snia Viscosa S.p.A.: *See*—
Isome, Yasuo; Minami, Toshio; and Takahashi, Tadahiko, 4,383,962, Cl. 264-196.000.

Snyder Corporation: *See*—
Corcoran, Thomas J., 4,383,457, Cl. 82-1.00C.

Socapex: *See*—
Legrand, Jacques; and Rouffy, Jean C., 4,383,907, Cl. 204-426.000.

S.A. Etablissements Francois Salomon & Fils: *See*—
Salomon, George P. J., 4,383,702, Cl. 280-611.000.

Societe d'Assistance Technique pour Produits Nestle S.A.: *See*—
Steinmetzer, Walter, 4,384,136, Cl. 562-444.000.

Societe de Conseils de Recherches et D'Applications Scientifiques: *See*—
Esanu, Andre, 4,383,998, Cl. 424-256.000.

Societe Francaise Hoechst: *See*—
Schouteeten, Alain; Christidis, Yani; and Vallejos, Jean-Claude, 4,384,137, Cl. 562-463.000.

Societe Nouvelle de Roulements: *See*—
Peilloud, Fernand; and Gladel, Gerard, 4,384,053, Cl. 523-153.000.

Soderlindh, Michel: *See*—
Vogl, Georg; Moller, Bo; and Soderlindh, Michel, 4,383,741, Cl. 350-538.000.

Soeno, Koh: *See*—
Komuro, Katsuhiro; Suwa, Masateru; Soeno, Koh; and Ohsawa, Masato, 4,383,970, Cl. 420-528.000.

Sohn, Lan S. Boiler tank for efficiently circulating low-temperature water. 4,383,643, Cl. 237-60.000.

Sokolovsky, Alexandr E.: *See*—
Lyakhevich, Genrikh D.; Sokolovsky, Alexandr E.; Suzansky, Vasily G.; and Kovalerchik, Vulf P., 4,384,150, Cl. 585-241.000.

Solar Heating & Spas, Inc.: *See*—
Braun, Alfred J., Jr., 4,383,340, Cl. 4-541.000.

Solco Basel AG: *See*—
Fraefel, Wolfgang; Lichti, Heinz F.; and Brunetti, Massimo, 4,383,832, Cl. 8-94.110.

Solodovnikov, Sergei A.: *See*—
Paton, Boris E.; Lebedev, Vladimir K.; Kuchuk-Yatsenko, Sergei I.; Sakharnov, Vasily A.; Galian, Boris A.; Asoiants, Grigory B.; Vorobei, Mikhail F.; and Solodovnikov, Sergei A., 4,383,786, Cl. 409-299.000.

Solomon, Steven P.; and Dunaway, James L. Rail lifting and cutting machine. 4,383,630, Cl. 225-103.000.

Somezawa, Masashi: *See*—
Takamizawa, Minoru; Kimura, Shigeo; Somezawa, Masashi; Kobayashi, Kunio; Inoue, Yoshio; and Yoshioka, Hiroshi, 4,384,100, Cl. 528-41.000.

Sone, Masazumi: *See*—
Fukuhara, Hiroshige; Hirota, Yukitsugu; and Sone, Masazumi, 4,384,331, Cl. 364-431.120.

Sonnabend, Lawrence F., to Dow Chemical Company, The. Liquid emulsion polymers useful as pH responsive thickeners for aqueous systems. 4,384,096, Cl. 526-313.000.

Sonnenberger, Paul, to U.S. Philips Corporation. Circuit arrangement for generating a synchronizable sawtooth voltage. 4,384,305, Cl. 358-158.000.

Sony Corporation: *See*—
Takamizawa, Minoru; Kimura, Shigeo; Somezawa, Masashi; Kobayashi, Kunio; Inoue, Yoshio; and Yoshioka, Hiroshi, 4,384,100, Cl. 528-41.000.

Sotokazu, Rikuta. Constant flow valve. 4,383,550, Cl. 137-517.000.

Southerling, H. Edward; and Wills, Charles H., to Scott Paper Company. Roll product accumulator. 4,383,600, Cl. 198-347.000.

Souza, Thomas, Jr. Railing system. 4,383,676, Cl. 256-59.000.

Spanjersberg, Albertus C.; Mink, Hans G.; and Barwegen, Johannes H. M., to Akzo N.V. Process and apparatus for the electrostatic spraying of electrically conductive paint. 4,383,644, Cl. 239-3.000.

Spector, George: *See*—
Maclean, Ewen M.; and Spector, George, 4,383,665, Cl. 244-103.00S.

Sperry Corporation: *See*—
Osborne, Donald L.; Shriver, Joe E.; and McClure, John R., 4,383,652, Cl. 241-88.400.
Slechta, Leo J., Jr.; Manning, Bennett W.; Preckshot, Nancy E.; and Wagner, Howard M., 4,384,325, Cl. 364-200.000.

Spie-Batignolles: *See*—
Clavier, Philippe, 4,383,891, Cl. 202-234.000.

Spiga, Guido: *See*—
Montefameglio, Livio; Ciaccio, Lorenzo; and Spiga, Guido, 4,383,952, Cl. 261-72.00R.

Spitler, Clem; and Farkas, Ralph, to Koehring Company. Drive unit for flexshaft vibrators. 4,384,224, Cl. 310-81.000.

SPOFA, spojene podniky pro zdravotnickou vyrobu: *See*—
Hesoun, Dusan; Vondracek, Bohumir; and Turinova, Jana, 4,384,118, Cl. 544-309.000.

Srivatsa, Sanjay R., to Nalco Chemical Company. Recovery of oil from oily sludges. 4,383,927, Cl. 210-708.000.

Stabilus GmbH: *See*—
Schnitzius, Klaus, 4,383,595, Cl. 188-281.000.

Stackpole Corporation, The: *See*—
Zelt, Edward J., 4,384,223, Cl. 310-68.00R.

Stackpole, Edward J., to Hart, John R. Solar powered lighting system. 4,384,317, Cl. 362-183.000.

Stacy, Carl J., to Phillips Petroleum Company. Chromatographic analysis using a plurality of detectors. 4,383,433, Cl. 73-23.100.

Stafford, John P.: *See*—
Long, Nicholas R.; Ryan, Joseph L.; Stafford, John P.; and Watkins, Richard R., 4,384,285, Cl. 340-723.000.

Stafford, William G. Wallpaper preparation board. 4,384,017, Cl. 428-12.000.

Stahlhammer Bommern Gebr. Schneider: *See*—
Niemoller, Gerhard; Stromberg, Wilfried; and Schneider, Friedhelm, 4,383,603, Cl. 198-731.000.

Stamicarbon, B.V.: *See*—
Goettsch, Reijer; and Jetten, Arnold G. M., 4,384,125, Cl. 548-555.000.

Standard Oil Company (Indiana): *See*—
Gutberlet, L. Charles; Bertolacini, Ralph J.; Kozinski, Allen A.; and Hooper, Craig L., 4,383,916, Cl. 208-189.000.
Karll, Robert E.; and Lee, Richard J., 4,384,138, Cl. 562-478.000.
Nimry, Tayseer S.; Fields, Ellis K.; and Paschke, Edward E., 4,384,071, Cl. 524-600.000.
Paschke, Edward E.; and Donohue, J. A., 4,384,112, Cl. 528-347.000.

Stanley Works, The: *See*—
Bobrowski, Louis G., 4,383,575, Cl. 165-55.000.

Stansbury, LeRoy, Jr.; and Donovan, William F., to United States of America, Army. Primer device. 4,383,472, Cl. 89-7.000.

Starr S. A.: *See*—
Schatteman, Etienne A. M.; and Agostini, Luigi, 4,384,310, Cl. 360-92.000.

Stauduhar, Richard P.: *See*—
Mozer, Forrest S.; and Stauduhar, Richard P., 4,384,169, Cl. 179-1.0SM.
Mozer, Forrest S.; and Stauduhar, Richard P., 4,384,170, Cl. 179-1.0SM.

Stauffer, Norman L., to Honeywell Inc. Spatial low pass filter for range finding systems. 4,384,210, Cl. 250-550.000.

Ste Look: *See*—
Beyl, Jean J. A., 4,383,699, Cl. 280-605.000.
Beyl, Jean J. A., 4,383,700, Cl. 280-605.000.

Stedman, Robert B.: *See*—
Loving, Robert O., Jr.; Zakrzewski, Thaddeus J.; Stedman, Robert B.; and Osberg, Daryl F., 4,384,165, Cl. 174-35.0GC.

Steeves, Arthur F.; and Buono, Donald P., to United States of America, Energy. Attack polish for nickel-base alloys and stainless steels. 4,383,857, Cl. 106-3.000.

Stein, Joseph L.; and Maskell, Thomas J., to General Refractories Company. Slide gate. 4,383,624, Cl. 222-600.000.

Steingroever, Dietrich: *See*—
Steingroever, Erich; and Steingroever, Dietrich, 4,384,313, Cl. 361-149.000.

Steingroever, Erich; and Steingroever, Dietrich. Process for demagnetizing components by alternating magnetic fields of varying intensity. 4,384,313, Cl. 361-149.000.

Steinmetzer, Walter, to Societe d'Assistance Technique pour Produits Nestle S.A. Process for recovering amino acids from protein hydrolysates. 4,384,136, Cl. 562-444.000.

Stencel, Edgar L., to VSI Corporation. Process of forming a joint with a predetermined clamp-up load. 4,383,353, Cl. 29-517.000.

Sterner, Russell L.; and Whittingham, Reginald P., to Kidde, Inc. Luffing jib for construction crane. 4,383,616, Cl. 212-182.000.

Stevens, Barry: *See*—
Nyman, Frederick R.; Stevens, Barry; and Ekstrom, Lincoln, 4,383,961, Cl. 264-107.000.

Stewart, Michael J.: *See*—
Allen, Harry L., Jr.; and Stewart, Michael J., 4,383,829, Cl. 440-75.000.

Stewart, Richard E., to TRW Inc. Under-load switching device particularly adapted for voltage regulation and balance. 4,384,247, Cl. 323-256.000.

Stillhard, Otmar, to Fritz Gegauf Aktiengesellschaft Bernina-Nachmaschinenfabrik. Sewing machine drive. 4,384,241, Cl. 318-317.000.

Stillwell, Howard R.; and Fernandes, Roosevelt A., to General Electric Company. Transponder unit for measuring temperature and current on live transmission lines. 4,384,289, Cl. 340-870.170.

Stoelting, Inc.: *See*—
Martineau, Tom N., 4,383,417, Cl. 62-127.000.

Stoller, Benjamin B. Odorless, non-volatile formaldehyde for use as a pesticide. 4,384,002, Cl. 424-315.000.

Stoody, William R. Pressurization method for aerosol dispenser. 4,383,399, Cl. 53-470.000.

Stork Screens B.V.: *See*—
Pruyn, Wilhelmus A.; and Mohan, Anand, 4,383,896, Cl. 204-11.000.

Stout, David J.: *See*—
Caswell, Donald; and Stout, David J., 4,384,018, Cl. 428-95.000.

StraPack Shimojima Co., Ltd.: *See*—
Sakaki, Yasunori, 4,383,881, Cl. 156-361.000.

Stravitz, David M., to Ambico Inc. Photographic filter pack and filter holder. 4,383,735, Cl. 350-318.000.

Streit, Werner: *See*—
Degen, Hans-Juergen; Guender, Wolf; Frey, Guenter; Streit, Werner; Fikentscher, Rolf; and Wulz, Klaus, 4,383,834, Cl. 8-551.000.

Stremel, Donald A.: *See*—
Moore, Michael T.; Olson, John M.; and Stremel, Donald A., 4,383,859, Cl. 106-22.000.

Stricker, Dieter: *See*—
Meier, Heinz; Stricker, Dieter; and Kammler, Detlef, 4,383,772, Cl. 400-55.000.

Stromberg, Wilfried: *See*—
Niemoller, Gerhard; Stromberg, Wilfried; and Schneider, Friedhelm, 4,383,603, Cl. 198-731.000.

Stubbmann, Albert: *See*—
Kohner, Michael; Kohner, Frank; and Stubbmann, Albert, 4,383,689, Cl. 273-145.00R.

Sugimoto, Koichi: *See*—
Suzuki, Takamichi; Sakata, Tomoaki; Sugimoto, Koichi; and Kohno, Michinaga, 4,383,359, Cl. 29-712.000.

Sugiura, Yoji: *See*—
Kawamura, Masaharau; Uchidoi, Masanori; Shigeta, Yoshihiro; Sugiura, Yoji; and Yamamoto, Hiroshi, 4,383,745, Cl. 354-149.000.

Sugiyama, Akira; and Hirota, Kunio, to Brother Kogyo Kabushiki Kaisha. Embroidery pattern forming machine. 4,383,489, Cl. 112-103.000.

Suh, Pierre K. S. Dispenser for products in sheet form. 4,383,657, Cl. 242-55.300.

Suimon, Yoshio, to ICD Corporation. Toy remote-control motor bicycle. 4,383,388, Cl. 46-254.000.

Suling, Carlhans: *See*—
Korte, Siegfried; Neukam, Theo; and Suling, Carlhans, 4,384,091, Cl. 526-222.000.

Sumikawa, Seiji; and Utsugi, Kazuo, to Diesel Kiki Co., Ltd. Heater unit for use in an air conditioner for automotive vehicles. 4,383,642, Cl. 237-12.30A.

Sumitomo Electric Industries, Ltd.: *See*—
Yamakawa, Akira; Doi, Akira; and Doi, Yoshihiko, 4,383,957, Cl. 264-65.000.

Sunset Ltd.: *See*—
Guibert, Raul, 4,384,191, Cl. 219-400.000.

Surprenant, Joseph. Liquid cathode electrochemical cell additives. 4,384,028, Cl. 429-105.000.

Suwa, Masateru: *See*—
Komuro, Katsuhiro; Suwa, Masateru; Soeno, Koh; and Ohsawa, Masato, 4,383,970, Cl. 420-528.000.

Suzansky, Vasily G.: *See*—
Lyakhevich, Genrikh D.; Sokolovsky, Alexandr E.; Suzansky, Vasily G.; and Kovalerchik, Vulf P., 4,384,150, Cl. 585-241.000.

Suzuki, Kiyoaki; Watanabe, Masaru; Yamamoto, Hisashi; Hayashi, Tomoharu; and Miura, Takuji, to Victor Company of Japan, Limited. Moving voice coil loudspeaker, peripheral diaphragm support, diaphragm construction, bobbin to diaphragm reinforcement. 4,384,174, Cl. 179-115.50R.

Suzuki, Masane; and Kanaya, Motonori, to Fuji Photo Optical Co., Ltd. Light transmitting system comprising beam dividing and compositing means. 4,383,729, Cl. 350-96.100.

Suzuki, Masatoshi: *See*—
Sano, Hiromi; and Suzuki, Masatoshi, 4,383,906, Cl. 204-416.000.

Suzuki, Shigeto, to Chevron Research Company. Process for the preparation of 1-nitroalkene. 4,384,149, Cl. 568-943.000.

Suzuki, Takamichi; Sakata, Tomoaki; Sugimoto, Koichi; and Kohno, Michinaga, to Hitachi, Ltd. Parts feeding and assembling system. 4,383,359, Cl. 29-712.000.

Svetlik, Harvey E., to Phillips Petroleum Company. Method and apparatus for forming a flange on thermoplastic tubing. 4,383,966, Cl. 264-296.000.

Swannell, Leslie E. J., to Delorean Research Limited Partnership. Molding process. 4,383,818, Cl. 425-546.000.

Swift, Harold E.: *See*—
Vogel, Roger F.; Madgavkar, Ajay M.; and Swift, Harold E., 4,384,162, Cl. 585-830.000.

SWS Silicones Corporation: *See*—
Martin, Eugene R., 4,384,130, Cl. 556-418.000.

Sylvander, Thomas, to Wamac-Idab AB. Arrangement for a machine particularly intended for handling loose signature packs. 4,383,788, Cl. 414-71.000.

Szucs, Stephen T., to American Cyanamid Company. Polysubstituted butanoic acids, esters and derivatives thereof utilizing the same as herbicides. 4,383,848, Cl. 71-88.000.

Tachibana, Eiichi: *See*—
Aoyama, Toshimi; Kato, Bonpei; Tohda, Hiroyuki; Tachibana, Eiichi; and Hikosaka, Shinichi, 4,384,011, Cl. 427-54.100.

Tadauchi, Yukio: *See*—
Tanaka, Atsuyuki; Kojima, Hiroaki; Kaieda, Shozo; Kakiuchi, Tokuzi; Nishioka, Nobuaki; Tadauchi, Yukio; and Nakagami, Hidekazu, 4,384,272, Cl. 382-50.000.

Taguchi, Kenichi: *See*—
Ishihara, Toshinobu; Yamamoto, Akira; and Taguchi, Kenichi, 4,384,158, Cl. 585-534.000.

Tague, Steven A.; and Negi, Virendra S., to Honeywell Information Systems Inc. Data processor having apparatus for controlling the selection of decimal digits of an operand when executing decimal arithmetic instructions. 4,384,340, Cl. 364-736.000.

Tague, Steven A.; and Negi, Virendra S., to Honeywell Information Systems Inc. Data processor having carry apparatus supporting a decimal divide operation. 4,384,341, Cl. 364-763.000.

Taira, Akio, to Olympus Optical Company Ltd. Apparatus for changing illumination optics of a microscope. 4,384,200, Cl. 250-205.000.

Tajima, Hatsuo, to Canon Kabushiki Kaisha. Developing device. 4,383,497, Cl. 118-651.000.

Takahashi, Sadayuki: *See*—
Inoue, Takeshi; and Takahashi, Sadayuki, 4,384,229, Cl. 310-315.000.

Takahashi, Tadahiko: *See*—
Isome, Yasuo; Minami, Toshio; and Takahashi, Tadahiko, 4,383,962, Cl. 264-196.000.

Takamatsu, Osamu; Ooshima, Hiyoshi; Kaneko, Katsuhiro; Hayashi, Hiroyuki; and Tsuda, Toyomori, to Hitachi Shipbuilding & Engineering Co. Anchor. 4,383,493, Cl. 114-294.000.

Takamatsu, Shunicti, to Itoki Kosakusho Co. Ltd. Article automatic storage and retrieval apparatus. 4,383,789, Cl. 414-277.000.

Takamizawa, Minoru; Kimura, Shigeo; Somezawa, Masashi; Kobayashi, Kunio; Inoue, Yoshio; and Yoshioka, Hiroshi, to Shin-Etsu Chemical Co., Ltd.; and Sony Corporation. Novel diorganopolysiloxane compounds. 4,384,100, Cl. 528-41.000.

Takamura, Masayuki: *See*—
Sata, Tekeo; Takamura, Masayuki; Yamagishi, Tomoo; Hoshi, Toshiharu; and Iijima, Kenzaburo, 4,383,856, Cl. 419-6.000.

Takaoka, Mosayoshi: *See*—
Meijer, Gerald; Takaoka, Mosayoshi; and Hayashi, Koichi, 4,384,180, Cl. 200-52.00R.

Takayama, Masayuki: *See*—
Tashiro, Hisao; Naito, Hirokuni; Takayama, Masayuki; and Yoshimura, Isao, 4,384,032, Cl. 429-249.000.

Takeuchi, Koji: *See*—
Kitamura, Nobuyoshi; Ito, Nobuo; and Takeuchi, Koji, 4,384,059, Cl. 524-100.000.

Takubo, Takamasa. Automatic lens grinding machine. 4,383,393, Cl. 51-101.0LG.

Tamaki, Hiroshi; Ohtomo, Fumio; and Kimura, Kazuaki, to Tokyo Kogaku Kikai K.K. Absolute encoder. 4,384,204, Cl. 250-237.00G.

Tanahashi, Toshio: *See*—
Ishikawa, Norikatsu; Onaka, Hidemi; Obata, Haruyuki; Tate, Takao; Tanahashi, Toshio; and Hagino, Isamu, 4,383,512, Cl. 123-440.000.

Tanaka, Atsuyuki; Kojima, Hiroaki; Kaieda, Shozo; Kakiuchi, Tokuzi; Nishioka, Nobuaki; Tadauchi, Yukio; and Nakagami, Hidekazu, to Minolta Camera Kabushiki Kaisha. Image reading apparatus. 4,384,272, Cl. 382-50.000.

Tanaka, Hiroaki: *See*—
Akita, Sigeyuki; and Tanaka, Hiroaki, 4,384,262, Cl. 331-66.000.

Tanaka, Kazuo: *See*—
Ogino, Yasuo; Niwa, Yukichi; Ohwada, Mitsutoshi; Tanaka, Kazuo; and Koumura, Noboru, 4,384,199, Cl. 250-204.000.

Tanaka, Toshio: *See*—
Oba, Takeo; Bannai, Kiyoshi; Tanaka, Toshio; Watanabe, Kenzo; Naruchi, Tatsuyuki; Komoriya, Keiji; Kurozumi, Seizi; and Hoshina, Kenji, 4,383,996, Cl. 424-251.000.

Tang, Sunny C., to Shell Oil Company. Process for butanediols. 4,384,146, Cl. 568-861.000.

Tanimoto, Yoshinori: *See*—
Kitadate, Kenichiro; Tanimoto, Yoshinori; and Mizuguti, Hirosi, 4,384,360, Cl. 378-202.000.

Tannenbaum, Alan R.: *See*—
Rosenbaum, Walter S.; and Tannenbaum, Alan R., 4,384,329, Cl. 364-300.000.

Tappe, Wilhelm: *See*—
Brenke, Manfred; Ihlefeldt, Jurgen; Kopineck, Hermann-Josef; and Tappe, Wilhelm, 4,384,303, Cl. 358-107.000.

Taprogge Gesellschaft mbH: *See*—
Bochinski, Rolf; Eimer, Klaus; Schildmann, Hans W.; and Schmitz, Gunther, 4,383,346, Cl. 15-104.06R.

Tarbox, Bruce H.: *See*—
Bruce, Kenneth E.; Lombardo, Ralph M., Jr.; Tarbox, Bruce H.; and Conway, John W., 4,384,322, Cl. 364-200.000.
Conway, John W.; Bradley, John J.; Bruce, Kenneth E.; Lombardo, Ralph M., Jr.; and Tarbox, Bruce H., 4,384,327, Cl. 364-200.000.

Tasai, Masaaki: *See*—
Hamane, Tokuhito; and Tasai, Masaaki, 4,383,360, Cl. 29-736.000.

Tasch, Al F., Jr.; Chatterjee, Pallab K.; and Fu, Horng-Sen, to Texas Instruments Incorporated. High performance submicron metal-oxide-semiconductor field effect transistor device structure. 4,384,301, Cl. 357-23.000.

Tashiro, Hisao; Naito, Hirokuni; Takayama, Masayuki; and Yoshimura, Isao, to Asahi-Dow Limited. Fluid transmitting polyolefin foams and method of making the same. 4,384,032, Cl. 429-249.000.

Tatano, Toshio: *See*—
Miike, Akira; Shimizu, Yoshiaki; Tatano, Toshio; and Watanabe, Katsuyuki, 4,384,042, Cl. 435-25.000.

Tate, Takao: *See*—
Ishikawa, Norikatsu; Onaka, Hidemi; Obata, Haruyuki; Tate, Takao; Tanahashi, Toshio; and Hagino, Isamu, 4,383,512, Cl. 123-440.000.

Tateishi, Kazushi; Anzai, Kuniaki; and Tomita, Taketoshi, to Tokyo Shibaura Denki Kabushiki Kaisha. Apparatus for driving pulse motors for automatically adjusting external circuits. 4,384,334, Cl. 364-481.000.

Taubner, Fred R.; Chiola, Vincent; and Fan, Albert K., to GTE Products Corporation. Fluorescent lamp containing adhesive frit in phosphor coating. 4,384,237, Cl. 313-486.000.

Technical Operations Limited: *See*—
Sloan, Albert E., 4,384,240, Cl. 318-255.000.

Technology Application Services Corporation: *See*—
Camacho, Salvador L., 4,383,820, Cl. 431-8.000.

Tecumseh Products Company: *See*—
Fry, Emanuel D., 4,384,312, Cl. 361-24.000.

Tedeschi, Anthony: *See*—
Chapman, James S.; and Tedeschi, Anthony, 4,383,357, Cl. 29-622.000.

Teegarden, Arlo F.; and Utter, Robert E., to Trane Company, The. Gas compressor of the scroll type having delayed suction closing capacity modulation. 4,383,805, Cl. 417-308.000.

Teijin Chemicals Ltd.: *See*—
Ohara, Osamu; and Kishimoto, Kazuo, 4,384,076, Cl. 525-67.000.

Teijin Limited: *See*—
Oba, Takeo; Bannai, Kiyoshi; Tanaka, Toshio; Watanabe, Kenzo; Naruchi, Tatsuyuki; Komoriya, Keiji; Kurozumi, Seizi; and Hoshina, Kenji, 4,383,996, Cl. 424-251.000.

Teledyne Stiil-Man Manufacturing: *See*—
Lowell, Herman H.; and Philpot, James E. (said James E. Philpot assors. to), 4,384,192, Cl. 219-468.000.

Teng, James; and Lucas, James M., to Anheuser-Busch, Incorporated. Gelled antiperspirant. 4,383,988, Cl. 424-68.000.

Terwedow, Henry A.: *See*—
Thomas, Norman W.; and Terwedow, Henry A., 4,383,391, Cl. 47-57.600.

Tescom Corporation: *See*—
Lunquist, Frank C.; and Kawamoto, Frank T., 4,383,648, Cl. 239-419.300.

Testa, Raymond T.: *See*—
Martin, John H. E. J.; Labeda, David P.; Korshalla, Joseph D.; Borders, Donald B.; and Testa, Raymond T., 4,384,043, Cl. 435-71.000.

Tetra Werke Dr. rer. nat. Ulrich Baensch Gesellschaft mit beschrankter Haftung: *See*—
Ritter, Gunter, 4,383,924, Cl. 210-662.000.

Texaco Inc.: *See*—
Wilson, James R.; Anzarut, Norman I.; and Crawford, Wheeler C., 4,383,836, Cl. 44-56.000.

Texas Instruments Incorporated: *See*—
Breit, Henry F., 4,384,234, Cl. 313-142.000.
McElroy, D. J., 4,384,349, Cl. 365-218.000.
Tasch, Al F., Jr.; Chatterjee, Pallab K.; and Fu, Horng-Sen, 4,384,301, Cl. 357-23.000.

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Theta-Com of California: *See*—
King, Charles T.; and Sigmon, Bernard E., 4,384,367, Cl. 455-325.000.

Thiokol Corporation: *See*—
Inman, Frank S., 4,383,407, Cl. 60-271.000.

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Pfieffer, Gerald R.; Robertson, Gary W.; Thompson, Charles H.; and Williams, Jerry D., 4,383,637, Cl. 229-38.000.

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LaBarre, Lawrence J.; Oliver, Bernard M.; Tyler, Charles E.; Thompson, Dennis C.; Neukermans, Armand P.; and McManigill, Douglass, 4,384,298, Cl. 346-129.000.

Thomson-Brandt: *See*—
Quesnoit, Jacques, 4,383,421, Cl. 62-333.000.

Thomson-CSF: *See*—
Huignard, Jean-Pierre; Herriau, Jean-Pierre; and Pichon, Laurence, 4,383,734, Cl. 350-162.130.
Ottenheimer, Philippe; and Haon, Pierre, 4,383,661, Cl. 244-3.140.
Pierrot, Robert; Gautier, Francois; and Crochet, Pierre, 4,384,290, Cl. 343-6.00A.
Simon, Jacques; and Defaut, Bernard, 4,383,731, Cl. 350-96.180.

Thorn EMI Limited: *See*—
Bollon, Anthony W.; and Clark, Christopher J., 4,384,235, Cl. 313-276.000.

Tiemens, Ulf: *See*—
Weiss, Hermann; Klotz, Erhard; Tiemens, Ulf; Linde, Rolf; and Mauser, Wilfried, 4,383,733, Cl. 350-130.000.

TII Industries: *See*—
Schleimann-Jensen, C. Arne, 4,383,723, Cl. 445-54.000.

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Maxwell, Bradley E., 4,383,599, Cl. 194-54.000.

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Tipton, James A. Insulation dispensing cage. 4,383,398, Cl. 52-743.000.

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Shimotori, Kazuhiro; Ichiyama, Toshio; and Tobita, Yooichi, 4,384,218, Cl. 307-304.000.

Tocci, Leonard R., to United States of America, Air Force. Layout for single level block access chip. 4,384,344, Cl. 365-16.000.

Tohda, Hiroyuki: *See*—
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Toho Aen Kabushiki Kaisha: *See*—
Yoshizawa, Akinori, 4,383,852, Cl. 75-0.50B.

Tokai Electric Wire Company Limited: *See*—
Nishida, Eiithi, 4,383,811, Cl. 425-123.000.

Tokico Ltd.: *See*—
Ishida, Kunio, 4,383,714, Cl. 297-325.000.

Tokyo Kogaku Kikai K.K.: *See*—
Tamaki, Hiroshi; Ohtomo, Fumio; and Kimura, Kazuaki, 4,384,204, Cl. 250-237.00G.

Tokyo Ohka Kogyo Kabushiki Kaisha: *See*—
Aoyama, Toshimi; Kato, Bonpei; Tohda, Hiroyuki; Tachibana, Eiichi; and Hikosaka, Shinichi, 4,384,011, Cl. 427-54.100.
Tokyo Shibaura Denki Kabushiki Kaisha: *See*—
Iizuka, Tetsuya, 4,384,300, Cl. 357-42.000.
Kitadate, Kenichiro; Tanimoto, Yoshinori; and Mizuguti, Hirosi, 4,384,360, Cl. 378-202.000.
Mizutani, Yoshihisa, 4,383,883, Cl. 156-603.000.
Nakamura, Kisaku; Jimi, Eiji; Goto, Haruyuki; and Hori, Akio, 4,383,886, Cl. 156-659.100.
Segawa, Makoto; and Ariizumi, Shoji, 4,384,220, Cl. 307-450.000.
Tateishi, Kazushi; Anzai, Kuniaki; and Tomita, Taketoshi, 4,384,334, Cl. 364-481.000.
Tomita, Taketoshi: *See*—
Tateishi, Kazushi; Anzai, Kuniaki; and Tomita, Taketoshi, 4,384,334, Cl. 364-481.000.
Tonooka, Keisuke: *See*—
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Toray Industries, Inc.: *See*—
Nakayama, Takashi; Kajita, Kohji; and Yamagata, Seiichi, 4,383,403, Cl. 57-207.000.
Torpey, Peter A., to Xerox Corporation. Linear ink jet deflection method and apparatus. 4,384,296, Cl. 346-75.000.
Toshiba Kikai Kabushiki Kaisha: *See*—
Kumazaki, Hiroshi, 4,383,816, Cl. 425-451.900.
Matsumoto, Mitsuo, 4,384,244, Cl. 318-803.000.
Ono, Tadahiro, 4,384,242, Cl. 318-721.000.
Toyo Jozo Kabushiki Kaisha: *See*—
Matsumoto, Kunio; Noda, Toshiharu; Fujii, Tadashiro; Watanabe, Susumu; Matsumoto, Kazuhiko; and Katsuragi, Shigeo, 4,384,041, Cl. 435-24.000.
Toyo Pulp Co., Ltd.: *See*—
Oshima, Masayuki; and Matsui, Yasuhiko, 4,383,890, Cl. 162-157.600.
Toyono, Tsutomu: *See*—
Honda, Harushisa; and Toyono, Tsutomu, 4,383,758, Cl. 355-68.000.
Toyota Iidosha Kogyo Kabushiki Kaisha: *See*—
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Toyota Jidosha Kogyo Kabushiki Kaisha: *See*—
Ishikawa, Norikatsu; Onaka, Hidemi; Obata, Haruyuki; Tate, Takao; Tanahashi, Toshio; and Hagino, Isamu, 4,383,512, Cl. 123-440.000.
Murata, Yoichi, 4,383,440, Cl. 73-117.300.
Nagai, Masahiko; and Yano, Minoru, 4,384,178, Cl. 200-19.00R.
Naito, Tadashi, 4,383,442, Cl. 73-119.00R.
Ujihashi, Michiaki; and Kato, Kichiro, 4,383,408, Cl. 60-274.000.
Yoshitsugu, Noritada, 4,383,704, Cl. 280-750.000.
Trachsler, Dieter: *See*—
Lohse, Friedrich; Trachsler, Dieter; and Moser, Roland, 4,384,084, Cl. 525-504.000.
Traenckner, Hans-Joachim: *See*—
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Traitteur, Heinrich: *See*—
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Trambourze, Pierre: *See*—
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Trammell, Kenneth L.; and Van Horne, Arthur C., to Data Products Corporation. Ribbon shield. 4,383,775, Cl. 400-208.000.
Trane Company, The: *See*—
Teegarden, Arlo F.; and Utter, Robert E., 4,383,805, Cl. 417-308.000.
Trestianu, Sorin: *See*—
Sisti, Giorgio; Galli, Mario; and Trestianu, Sorin, 4,383,839, Cl. 55-67.000.
Triumph-Adler A.G. fur Buro- und Informationstechnik: *See*—
Meier, Heinz; Stricker, Dieter; and Kammler, Detlef, 4,383,772, Cl. 400-55.000.
Trommen, Hartmut: *See*—
Rother, Bruno; and Trommen, Hartmut, 4,383,965, Cl. 264-257.000.
Trotter, Jimmy R.; Hawkins, James M.; and McConnell, Richard L., to National Starch And Chemical Corporation. Vinyl copolymer adhesives. 4,384,064, Cl. 524-239.000.
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Graniero, Ronald S.; and Truglia, John S., 4,383,362, Cl. 29-822.000.
Trujillo, Jose A., to Riguez Associates. Adaptive mix proportioning method for use in asphaltic concrete mixing plants. 4,383,864, Cl. 106-281.00R.
TRW Inc.: *See*—
Metter, Ronald G., 4,384,245, Cl. 322-28.000.
Rauschenbach, Hans S.; Bashin, Saul; and Smith, Barry N., 4,384,163, Cl. 136-245.000.
Stewart, Richard E., 4,384,247, Cl. 323-256.000.
Tsividis, Yannis, to Bell Telephone Laboratories, Incorporated. Temperature stabilized voltage reference circuit. 4,384,217, Cl. 307-297.000.
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Takamatsu, Osamu; Ooshima, Hiyoshi; Kaneko, Katsuhiro; Hayashi, Hiroyuki; and Tsuda, Toyomori, 4,383,493, Cl. 114-294.000.
Tsuji, Hiroshi: *See*—
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Tsuji, Shigeki: *See*—
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Tsuno, Katsushige, to Jeol Ltd. Electron lens equipped with three magnetic pole pieces. 4,384,208, Cl. 250-396.0ML.
Tuda, Goro; and Mizuguchi, Osamu, to Kobe Steel, Limited. Arm with gravity-balancing function. 4,383,455, Cl. 74-469.000.
Turbo Resources Ltd.: *See*—
Johnson, Conrad B., 4,383,915, Cl. 208-183.000.
Turinova, Jana: *See*—
Hesoun, Dusan; Vondracek, Bohumir; and Turinova, Jana, 4,384,118, Cl. 544-309.000.
Tyler, Charles E.: *See*—
LaBarre, Lawrence J.; Oliver, Bernard M.; Tyler, Charles E.; Thompson, Dennis C.; Neukermans, Armand P.; and McManigill, Douglass, 4,384,298, Cl. 346-129.000.
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Tyras, Herbert: *See*—
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UBE Industries, Ltd.: *See*—
Miyazaki, Haruhiko; Shiomi, Yasushi; Fujitsu, Satoru; Masunaga, Katsuro; and Yanagisawa, Hiroshi, 4,384,133, Cl. 560-204.000.
Uchida, Isamu, to Laurel Bank Machine Co., Ltd. Coin accumulator assembly for coin wrapping machine. 4,383,541, Cl. 133-8.00A.
Uchidoi, Masanori: *See*—
Kawamura, Masaharau; Uchidoi, Masanori; Shigeta, Yoshihiro; Sugiura, Yoji; and Yamamoto, Hiroshi, 4,383,745, Cl. 354-149.000.
Uecker, Richard P.: *See*—
De Meyer, Roy W.; Harder, Frederick H.; Buchholz, Arnold R.; Uecker, Richard P.; and Kressin, John A., 4,383,540, Cl. 133-3.00H.
Uhlemayr, Albert; and Traitteur, Heinrich, to Michael Huber Munchen GmbH. Paper printing ink and its use. 4,383,860, Cl. 106-27.000.
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Ulmer, Richard W.: *See*—
Kelley, Stephen H.; and Ulmer, Richard W., 4,384,276, Cl. 340-347.0DA.
Unger, Thomas E.: *See*—
Plichta, George J.; and Ungér, Thomas E., 4,383,495, Cl. 118-406.000.
Uni-Cardan Aktiengesellschaft: *See*—
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Union Carbide Corporation: *See*—
Kanner, Bernard; and Hopper, Steven P., 4,384,131, Cl. 556-422.000.
Uniroyal, Inc.: *See*—
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United Kingdom of Great Britain and Northern Ireland, The Secretary of State for Industry in Her Britannic Majesty's Government of the: *See*—
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United States of America
Agriculture: *See*—
Lagerstedt, Harry B., 4,383,390, Cl. 47-6.000.
Air Force: *See*—
Elwell, John L., Jr., 4,383,867, Cl. 106-311.000.
Perez, David J., 4,383,664, Cl. 244-100.00A.
Tocci, Leonard R., 4,384,344, Cl. 365-16.000.
Williamson, Robert P., 4,384,198, Cl. 250-203.00R.
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Coates, Arthur D.; Donovan, William F.; Rakaczky, John A.; and Scott, Wayman E., 4,383,485, Cl. 102-364.000.
Durenec, Peter; and Dunn, Aubrey J., 4,383,548, Cl. 137-321.000.
F'Geppert, Erwin, 4,383,697, Cl. 280-415.00A.
La Fever, Clifford E., 4,383,471, Cl. 89-1.00K.
Paurus, Donald L.; and Lehtola, Evert E., 4,383,474, Cl. 89-41.0ME.
Stansbury, LeRoy, Jr.; and Donovan, William F., 4,383,472, Cl. 89-7.000.
Wysor, Michael S., 4,384,117, Cl. 544-225.000.
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Aaron, W. Scott; Kinser, Donald L.; and Quinby, Thomas C., 4,383,855, Cl. 419-19.000.
Kenney, Walter J., 4,384,168, Cl. 174-126.00S.
Steeves, Arthur F.; and Buono, Donald P., 4,383,857, Cl. 106-3.000.
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Rice, Stephen H., 4,383,785, Cl. 409-131.000.

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Forman, Donald B., 4,383,736, Cl. 350-320.000.
Lewis, Bernard L.; and Kretschmer, Frank F., Jr., 4,384,291, Cl. 343-17.2PC.
Nichols, Roy L., 4,383,663, Cl. 244-3.160.
Wilger, John F.; Nakano, Gregory S.; Orillo, Stephen, Jr.; Medrano, Alfred; Sears, Billy D.; and Uyetake, Tadao, 4,383,395, Cl. 51-245.000.
U.S. Philips Corporation: *See*—
Duifhuis, Hendrikus; Willems, Leonardus F.; and Sluyter, Robert J., 4,384,335, Cl. 364-513.000.
Hellwig, Paul; and Schlagheck, Werner, 4,384,236, Cl. 313-318.000.
Huisman, Hendrikus F.; and deBres, Johannes G. C. M., 4,384,012, Cl. 427-130.000.
Khoe, Giok D.; Kock, Hendrikus G.; Kuppers, Dieter; and Lydtin, Hans-Jurgen, 4,384,038, Cl. 430-321.000.
Meijer, Gerald; Takaoka, Mosayoshi; and Hayashi, Koichi, 4,384,180, Cl. 200-52.00R.
Roberts, John S., 4,383,872, Cl. 148-175.000.
Rupp, Karl; and Ruyten, Henricus, 4,383,632, Cl. 226-190.000.
Sonnenberger, Paul, 4,384,305, Cl. 358-158.000.
Visser, Cornelis A., 4,384,271, Cl. 340-119.000.
Wagner, Wolfgang; and Harding, Geoffrey, 4,384,209, Cl. 378-14.000.
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Green, David T., 4,383,634, Cl. 227-19.000.
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Legge, John R., 4,383,426, Cl. 72-63.000.
Wisner, George R., 4,384,230, Cl. 310-317.000.
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University of Kentucky Research Foundation: *See*—
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University of Utah: *See*—
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UOP Inc.: *See*—
DeGraff, Richard R., 4,384,157, Cl. 585-514.000.
Schmidt, Robert J., 4,384,148, Cl. 568-907.000.
Urban, Peter, 4,383,983, Cl. 423-571.000.
Upjohn Company, The: *See*—
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Urban, Gerd: *See*—
Opitz, Heinrich; Montag, Bernhard; and Urban, Gerd, 4,384,039, Cl. 430-422.000.
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Utsugi, Kazuo: *See*—
Sumikawa, Seiji; and Utsugi, Kazuo, 4,383,642, Cl. 237-12.30A.
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Teegarden, Arlo F.; and Utter, Robert E., 4,383,805, Cl. 417-308.000.
Uyetake, Tadao: *See*—
Wilger, John F.; Nakano, Gregory S.; Orillo, Stephen, Jr.; Medrano, Alfred; Sears, Billy D.; and Uyetake, Tadao, 4,383,395, Cl. 51-245.000.
Valex, Inc.: *See*—
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Valin Corporation: *See*—
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Vallejos, Jean-Claude: *See*—
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Vallourec: *See*—
Grandemange, Francois G., 4,383,604, Cl. 198-775.000.
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van der Lely, Cornelis. Articulated tractor having power units in tandem. 4,383,590, Cl. 180-314.000.
van Erp, Willibrord A.; and Velthuis, Otto M., to Shell Oil Company. Process for the separation of crystalline silicates. 4,383,981, Cl. 423-326.000.
van Hattem, Jan C.: *See*—
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Van Horne, Arthur C.: *See*—
Trammell, Kenneth L.; and Van Horne, Arthur C., 4,383,775, Cl. 400-208.000.
van Kettenbroek, Hendrik J., to Moba Holding Barneveld B.V. Grading device. 4,383,613, Cl. 209-514.000.
Van Landeghem, Heynderick R., legal representative: *See*—
Audibert, Francois; Trambourze, Pierre; and Van Landeghem, Hugo, deceased, 4,384,151, Cl. 585-241.000.
Van Landeghem, Hugo, deceased: *See*—
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Vanzile, Richard R.: *See*—
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Vardi, Isaih; Bourne, Joseph; Ben-Dror, Jonathan; and Kimchi, Yigal. Reduction of superheating. 4,383,424, Cl. 62-476.000.
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Kordesch, Karl; and Gsellmann, Josef, 4,384,029, Cl. 429-169.000.
Vectrol, Inc.: *See*—
Muskovac, Nicholas G., 4,384,243, Cl. 318-729.000.
Velthuis, Otto M.: *See*—
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Vereinigte Flugtechnische Werke GmbH: *See*—
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Viale, Alain: *See*—
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Victor Company of Japan, Ltd.: *See*—
Saito, Takashi; Mochizuki, Masafumi; and Hirano, Toshio, 4,384,352, Cl. 369-77.000.
Suzuki, Kiyoaki; Watanabe, Masaru; Yamamoto, Hisashi; Hayashi, Tomoharu; and Miura, Takuji, 4,384,174, Cl. 179-115.50R.
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Bogese, Charles E.; and Bogese, Stephen B., II, 4,383,725, Cl. 339-99.00R.
Visser, Cornelis A., to U.S. Philips Corporation. Traffic light. 4,384,271, Cl. 340-119.000.
Vogel, Karl: *See*—
Preuss, Reinhard; Grutze, Joachim; Beck, Ulrich; Pantke, Hellmuth; and Vogel, Karl, 4,383,835, Cl. 8-602.000.
Vogel, Roger F.; Madgavkar, Ajay M.; and Swift, Harold E., to Gulf Research & Development Company. Removing boron trifluoride contaminant from organic liquids with polyvinyl alcohol. 4,384,162, Cl. 585-830.000.
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Volz, Robert G.; Vanzile, Richard R.; and Bolesky, Richard C., to Zimmer USA, Inc. Elbow prosthesis. 4,383,337, Cl. 3-1.910.
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McBrayer, Robert L.; Demou, John G.; Kan, Peter T.; and Volz, William E., 4,384,052, Cl. 521-162.000.
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von Meer, Walter, to Schoeller, Felix, Jr. Waterproof photographic paper. 4,384,040, Cl. 430-532.000.
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Hilscher, Eduard; Ott, Karl-Heinz; and von Reppert, Rudiger L., 4,383,925, Cl. 210-708.000.
Vorobei, Mikhail F.: *See*—
Paton, Boris E.; Lebedev, Vladimir K.; Kuchuk-Yatsenko, Sergei I.; Sakharnov, Vasily A.; Galian, Boris A.; Asoiants, Grigory B.; Vorobei, Mikhail F.; and Solodovnikov, Sergei A., 4,383,786, Cl. 409-299.000.
Vosper, George W. Boiler low water level sensing device. 4,383,544, Cl. 137-94.000.
Vota, Joseph A.: *See*—
Collins, Alan L.; and Vota, Joseph A., 4,383,539, Cl. 132-88.500.
Vradenburg, Dave: *See*—
Bezzerides, Paul A., 4,383,389, Cl. 47-1.410.
VSI Corporation: *See*—
Stencel, Edgar L., 4,383,353, Cl. 29-517.000.
Vulcan Equipment Company, Ltd.: *See*—
Bubik, Leslie, 4,383,807, Cl. 414-563.000.
Vulcan Materials Company: *See*—
Scott, Paul E.; Willich, George W.; and Jemison, William W., Jr., 4,383,715, Cl. 299-88.000.
W.A. Tyzack & Company Limited: *See*—
Harding, Barry; Miles, George W.; and Cowan, Barry J., 4,383,871, Cl. 148-12.400.
W. R. Grace & Co.: *See*—
Guthrie, James L., 4,384,050, Cl. 521-137.000.

Guthrie, James L., 4,384,051, Cl. 521-137.000.
Waconia Manufacturing Industries, Inc.: *See*—
Peters, James H., 4,383,459, Cl. 83-411.00R.
Wade, Charles G.; and Fillman, Harold T., to Atlas Powder Company. Sensitive low water emulsion explosive compositions. 4,383,873, Cl. 149-2.000.
Wagner, George M., to Occidental Chemical Corporation. Fire retarding organophosphate compositions. 4,383,858, Cl. 106-18.140.
Wagner, Howard M.: *See*—
Slechta, Leo J., Jr.; Manning, Bennett W.; Preckshot, Nancy E.; and Wagner, Howard M., 4,384,325, Cl. 364-200.000.
Wagner, Wolfgang; and Harding, Geoffrey, to U.S. Philips Corporation. Method of and device for determining the contour of a body by means of radiation scattered by the body. 4,384,209, Cl. 378-14.000.
Wakamatsu, Atsuyuki; and Tonooka, Keisuke, to Daiwa Can Company, Limited. Bag transfer apparatus. 4,383,795, Cl. 414-753.000.
Walden, Jack M.: *See*—
Watson, Robert E.; Walden, Jack M.; and Near, Charles W., 4,384,328, Cl. 364-200.000.
Walker, Richard T.: *See*—
Coe, Paul L.; Jones, Albert S.; Noble, Stewart A.; and Walker, Richard T., 4,383,990, Cl. 424-180.000.
Wallace Murray Corporation: *See*—
Blair, Everett G., 4,383,597, Cl. 192-58.00B.
Wallick, William P. Method for applying a grill stripe to a food product. 4,384,006, Cl. 426-383.000.
Walls, John E.: *See*—
Gillich, Thomas N.; Walls, John E.; Wanat, Stanley F.; and Rozell, William J., 4,383,897, Cl. 204-33.000.
Walls, Robert R.: *See*—
Schillke, Peter; and Walls, Robert R., 4,383,494, Cl. 118-50.000.
Walsworth, Frank J., to Outboard Marine Corporation. Marine propulsion device with mechanical fuel pressure operated device for supplying a fuel/oil mixture. 4,383,504, Cl. 123-73.0AD.
Walter, Lothar: *See*—
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; Kunkel, Heinrich; Dobhan, Herbert; Horling, Peter; and Klupfel, Norbert, 4,383,670, Cl. 249-60.000.
Walters, Charles J. Automobile dolly. 4,383,681, Cl. 269-17.000.
Walters, Thomas, Jr., to Ecolaire Incorporated. High temperature, high pressure valve. 4,383,546, Cl. 137-240.000.
Walton, Charles A. Portable radio frequency emitting identifier. 4,384,288, Cl. 340-825.340.
Wamac-Idab AB: *See*—
Sylvander, Thomas, 4,383,788, Cl. 414-71.000.
Wanat, Stanley F.: *See*—
Gillich, Thomas N.; Walls, John E.; Wanat, Stanley F.; and Rozell, William J., 4,383,897, Cl. 204-33.000.
Wang, David N.: *See*—
Maydan, Dan; and Wang, David N., 4,383,885, Cl. 156-643.000.
Ward, Donald L., to White Seal Design (Finance) Limited. Furniture or the like. 4,383,397, Cl. 52-254.000.
Warner-Lambert Company: *See*—
Cea, Theresa; Posta, Joseph D.; and Glass, Michael, 4,384,004, Cl. 426-3.000.
Watanabe, Katsuyuki: *See*—
Miike, Akira; Shimizu, Yoshiaki; Tatano, Toshio; and Watanabe, Katsuyuki, 4,384,042, Cl. 435-25.000.
Watanabe, Kenzo: *See*—
Oba, Takeo; Bannai, Kiyoshi; Tanaka, Toshio; Watanabe, Kenzo; Naruchi, Tatsuyuki; Komoriya, Keiji; Kurozumi, Seizi; and Hoshina, Kenji, 4,383,996, Cl. 424-251.000.
Watanabe, Kiyoshi: *See*—
Ohashi, Takehisa; Shimazaki, Masami; Nomura, Kenji; Kan, Kazunori; and Watanabe, Kiyoshi, 4,384,139, Cl. 562-512.000.
Watanabe, Masaru: *See*—
Suzuki, Kiyoaki; Watanabe, Masaru; Yamamoto, Hisashi; Hayashi, Tomoharu; and Miura, Takuji, 4,384,174, Cl. 179-115.50R.
Watanabe, Susumu: *See*—
Matsumoto, Kunio; Noda, Toshiharu; Fujii, Tadashiro; Watanabe, Susumu; Matsumoto, Kazuhiko; and Katsuragi, Shigeo, 4,384,041, Cl. 435-24.000.
Watkins, Richard R.: *See*—
Long, Nicholas R.; Ryan, Joseph L.; Stafford, John P.; and Watkins, Richard R., 4,384,285, Cl. 340-723.000.
Watson, Robert E.; Walden, Jack M.; and Near, Charles W., to Hewlett-Packard Company. Programmable calculator including magnetic reading and recording means. 4,384,328, Cl. 364-200.000.
Waugh, Charles J. Grape stake. 4,383,396, Cl. 52-40.000.
Wayn-Tex Inc.: *See*—
Caswell, Donald; and Stout, David J., 4,384,018, Cl. 428-95.000.
Weathers, Warren O. Kite having high lift to drag ratio. 4,383,667, Cl. 244-153.00R.
Weber, Leo. Show case, in particular for displaying shoes or the like. 4,383,722, Cl. 312-324.000.
Weber S.p.A.: *See*—
Montefameglio, Livio; Ciaccio, Lorenzo; and Spiga, Guido, 4,383,952, Cl. 261-72.00R.
Webster, Henry L., to Wescor, Inc. Iontophoretic electrode device, method and gel insert. 4,383,529, Cl. 128-207.210.
Weger, Kenneth F., Jr.: *See*—
Knaack, Howard L.; and Weger, Kenneth F., Jr., 4,383,721, Cl. 312-319.000.
Weinblatt, Lee S. Television viewing support apparatus for use in an automobile. 4,383,626, Cl. 224-275.000.
Weir, Norman F., to Chromalloy American Corporation. Tractor implement mount. 4,383,793, Cl. 414-686.000.
Weiss, Hermann; Klotz, Erhard; Tiemens, Ulf; Linde, Rolf; and Mauser, Wilfried, to U.S. Philips Corporation. Device for forming layer images of a three-dimensional object by means of a lens matrix. 4,383,733, Cl. 350-130.000.
Weller, Gerhard: *See*—
Rosenfeldt, Bernd; Weller, Gerhard; and Reis, Edmund, 4,384,168, Cl. 455-602.000.
Wells, Alan A. Wave energy apparatus. 4,383,413, Cl. 60-497.000.
Wells, Howard M., to University of Utah. Apparatus for classifying airborne particulate matter. 4,383,917, Cl. 209-144.000.
Wells, Peter M.: *See*—
Gordon, Jay E.; and Wells, Peter M., 4,383,422, Cl. 62-457.000.
Wells, Robert C., to General Electric Company. Optical fiber angle position sensor. 4,384,203, Cl. 250-227.000.
Wendel, Kurt; and Hirsch, Gunter, to BASF Aktiengesellschaft. Paper-coating compositions. 4,384,069, Cl. 524-521.000.
Wenn, Donald F.: *See*—
Findlay, James W.; Darby, John; Lewis, David; and Wenn, Donald F., 4,383,824, Cl. 432-222.000.
Wermelinger, Hans: *See*—
Lehmann, Hansrudolf; and Wermelinger, Hans, 4,383,453, Cl. 74-128.000.
Werner, Jean-Jacques, to Bell Telephone Laboratories, Incorporated. Control of coefficient drift for fractionally spaced equalizers. 4,384,355, Cl. 375-14.000.
Wescor, Inc.: *See*—
Webster, Henry L., 4,383,529, Cl. 128-207.210.
Weste, Neil H. E.: *See*—
Ackland, Bryan D.; Burr, David J.; and Weste, Neil H. E., 4,384,273, Cl. 382-34.000.
Western Electric Co., Inc.: *See*—
Chapman, James S.; and Tedeschi, Anthony, 4,383,357, Cl. 29-622.000.
Iyengar, Rama, 4,383,843, Cl. 65-2.000.
Plichta, George J.; and Unger, Thomas E., 4,383,495, Cl. 118-406.000.
Westinghouse Electric Corp.: *See*—
Bogel, George F., 4,384,213, Cl. 307-64.000.
Milianowicz, Stanislaw A., 4,384,179, Cl. 200-50.0AA.
Weyerhaeuser Company: *See*—
Lochmiller, Eugene C., 4,383,609, Cl. 206-386.000.
White, Herbert A., to American General Supply Company. Method of pouring steel into a container. 4,383,570, Cl. 164-57.100.
White, Ronald P.: *See*—
Pagliarini, John A., Jr.; and White, Ronald P., 4,384,351, Cl. 367-175.000.
White Seal Design (Finance) Limited: *See*—
Ward, Donald L., 4,383,397, Cl. 52-254.000.
Whitesell, Eric J.: *See*—
Hoxsie, Nein T.; and Whitesell, Eric J., 4,383,432, Cl. 73-6.000.
Whittingham, Reginald P.: *See*—
Sterner, Russell L.; and Whittingham, Reginald P., 4,383,616, Cl. 212-182.000.
Wieder, Wolfgang: *See*—
Hocker, Jurgen; Wieder, Wolfgang; Merten, Rudolf; and Witte, Josef, 4,384,090, Cl. 526-169.200.
Wilder, Gene R.: *See*—
Merten, Helmut L.; and Wilder, Gene R., 4,384,142, Cl. 564-450.000.
Wilger, John F.; Nakano, Gregory S.; Orillo, Stephen, Jr.; Medrano, Alfred; Sears, Billy D.; and Uyetake, Tadao, to United States of America, Navy. In-place rotating grinding machine. 4,383,395, Cl. 51-245.000.
Wilkinson, Bruce L.: *See*—
Incledon, Stephen H.; and Wilkinson, Bruce L., 4,384,320, Cl. 363-25.000.
Willems, Leonardus F.: *See*—
Duifhuis, Hendrikus; Willems, Leonardus F.; and Sluyter, Robert J., 4,384,335, Cl. 364-513.000.
Williams, Alfred G.: *See*—
Cartwright, David; Salmon, Roger; and Williams, Alfred G., 4,384,135, Cl. 562-435.000.
Williams, Brian H.: *See*—
Young, Chung-I; and Williams, Brian H., 4,383,878, Cl. 156-235.000.
Williams, Jerry D.: *See*—
Pfieffer, Gerald R.; Robertson, Gary W.; Thompson, Charles H.; and Williams, Jerry D., 4,383,637, Cl. 229-38.000.
Williams, Mark A., to Cincinnati Milacron Inc. Aqueous functional fluid compositions. 4,383,937, Cl. 252-389.00R.
Williams, Robert W.; and Montaruli, Vincent. Radiant oven for baking bread. 4,383,823, Cl. 432-148.000.
Williamson, Lawrie A.: *See*—
Joseph, Stephen H.; Miller, John E.; and Williamson, Lawrie A., 4,383,968, Cl. 264-503.000.
Williamson, Robert P., to United States of America, Air Force. Time-shared aperture device. 4,384,198, Cl. 250-203.00R.
Williard, Daniel G.: *See*—
Beard, Hoyt S.; Williard, Daniel G.; and Woempner, Marvin G., 4,383,538, Cl. 131-300.000.
Willich, George W.: *See*—
Scott, Paul E.; Willich, George W.; and Jemison, William W., Jr., 4,383,715, Cl. 299-88.000.

Willis, Frederick G.; Radtke, Richard R.; Ellison, Joseph; Fozo, Steven R.; and Kern, Glenn A., to Ford Motor Company. Method for generating a table of engine calibration control values. 4,383,441, Cl. 73-117.300.

Wills, Charles H.: *See*—
Southerling, H. Edward; and Wills, Charles H., 4,383,600, Cl. 198-347.000.

Wilson, Glenn A.: *See*—
Kledzik, Gary S.; Wilson, Glenn A.; and Mahone, Mark D., 4,384,193, Cl. 219-521.000.

Wilson, James R.; Anzarut, Norman I.; and Crawford, Wheeler C., to Texaco Inc. Method for treating an aqueous ethanol mixture. 4,383,836, Cl. 44-56.000.

Wincze, Steven P., to Combustion Engineering, Inc. Rotary regenerative air heater. 4,383,573, Cl. 165-7.000.

Wingler, Frank; Leusner, Bernd; Schwabe, Peter; and Geyer, Otto-Christian, to Bayer Aktiengesellschaft. Contact lenses of methyl methacrylate copolymers. 4,384,097, Cl. 526-328.500.

Winona Tool Manufacturing Company: *See*—
Hanson, Wayne H.; Heyl, Derrick L.; Krause, Bradley D.; Kravik, Richard C.; Lawson, Gerald P.; and Schueler, Jerry L., 4,383,542, Cl. 134-105.000.

Winter, Roland A. E.: *See*—
Dexter, Martin; and Winter, Roland A. E., 4,383,863, Cl. 106-125.000.

Wirsbinski, James L., to J. I. Case Company. Dozer blade mounting arrangement. 4,383,381, Cl. 37-283.000.

Wismer, Robert D.: *See*—
Gregoire, James L.; Wismer, Robert D.; and Brouer, Robert L., 4,383,561, Cl. 144-245.00A.

Wisner, George R., to United Technologies Corporation. Digital piezoelectric actuator. 4,384,230, Cl. 310-317.000.

Witte, Hans H., to Siemens Aktiengesellschaft. Optical four-gate coupler. 4,383,730, Cl. 350-96.160.

Witte, Josef: *See*—
Hocker, Jurgen; Wieder, Wolfgang; Merten, Rudolf; and Witte, Josef, 4,384,090, Cl. 526-169.200.

Woempner, Marvin G.: *See*—
Beard, Hoyt S.; Williard, Daniel G.; and Woempner, Marvin G., 4,383,538, Cl. 131-300.000.

Wolff, Claude. Reflecting device for golf training or any other sport using a ball striking staff. 4,383,687, Cl. 273-35.00A.

Wolff, Richard H.: *See*—
Imbeninato, Paul A.; and Wolff, Richard H., 4,383,452, Cl. 74-5.470.

Wolff, Siegfried: *See*—
Schwarz, Rudolf; Kleinschmit, Peter; Liedtke, Christa; and Wolff, Siegfried, 4,384,132, Cl. 556-427.000.

Wong, Jack Y. High gloss water-base coating composition. 4,384,065, Cl. 524-322.000.

Woodlets, Inc.: *See*—
Palson, Richard C. J., 4,383,951, Cl. 261-30.000.

Woodruff, Frank; Ferguson, John H., Jr.; and Hoffman, John R., to Bendix Corporation, The. Integrated hydraulic control circuit for jet engine thrust reverser and variable exhaust nozzle. 4,383,647, Cl. 239-265.190.

Woods, Edwin K. Solar assist for the lifting, purification and storage of water. 4,383,892, Cl. 203-11.000.

Wright, William E., Jr., to Carrier Corporation. Control system for pulsed DC arc welding power supply. 4,384,188, Cl. 219-130.510.

Wright, William E., Jr.: *See*—
Jackson, Dale E.; and Wright, William E., Jr., 4,384,187, Cl. 219-130.510.

Wu, Vic C.: *See*—
United States of America, National Aeronautics and Space Administration; Bhagat, Pramode K.; and Wu, Vic C., 4,383,533, Cl. 128-660.000.

Wulz, Klaus: *See*—
Degen, Hans-Juergen; Guender, Wolf; Frey, Guenter; Streit, Werner; Fikentscher, Rolf; and Wulz, Klaus, 4,383,834, Cl. 8-551.000.

Wunderlich, Jorg: *See*—
Deter, Christhard; Hiller, Klaus; Laack, Ulrich; Leuschner, Reiner; and Wunderlich, Jorg, 4,383,760, Cl. 356-150.000.

Wynne, James R. Power boat with extended propeller pocket. 4,383,828, Cl. 440-69.000.

Wysor, Michael S., to United States of America, Army. Silver metachloridine. 4,384,117, Cl. 544-225.000.

Xerox Corporation: *See*—
Torpey, Peter A., 4,384,296, Cl. 346-75.000.

Yamada Iryo Shomei Kabushiki Kaisha: *See*—
Hayakawa, Yoshito, 4,384,315, Cl. 362-33.000.

Yamagata, Seiichi: *See*—
Nakayama, Takashi; Kajita, Kohji; and Yamagata, Seiichi, 4,383,403, Cl. 57-207.000.

Yamagata University: *See*—
Morita, Minoru; Sato, Shimio; Hashimoto, Takao; and Kitaoka, Yoji, 4,383,911, Cl. 208-10.000.

Yamagishi, Tomoo: *See*—
Sata, Tekeo; Takamura, Masayuki; Yamagishi, Tomoo; Hoshi, Toshiharu; and Iijima, Kenzaburo, 4,383,856, Cl. 419-6.000.

Yamakawa, Akira; Doi, Akira; and Doi, Yoshihiko, to Sumitomo Electric Industries, Ltd. Method of sintering a ceramic composition. 4,383,957, Cl. 264-65.000.

Yamamoto, Akira: *See*—
Ishihara, Toshinobu; Yamamoto, Akira; and Taguchi, Kenichi, 4,384,158, Cl. 585-534.000.

Yamamoto, Hiroshi: *See*—
Kawamura, Masaharau; Uchidoi, Masanori; Shigeta, Yoshihiro; Sugiura, Yoji; and Yamamoto, Hiroshi, 4,383,745, Cl. 354-149.000.

Yamamoto, Hisashi: *See*—
Suzuki, Kiyoaki; Watanabe, Masaru; Yamamoto, Hisashi; Hayashi, Tomoharu; and Miura, Takuji, 4,384,174, Cl. 179-115.50R.

Yamashita, Keitaro, to Hitachi Metals, Ltd. Apparatus for applying magnetic toner to a magnetic transport roll. 4,383,498, Cl. 118-657.000.

Yanagida, Tuneo, to Olympus Optical Co., Ltd. Apparatus for recording and detecting a cue signal. 4,384,308, Cl. 360-8.000.

Yanagisawa, Hiroshi: *See*—
Miyazaki, Haruhiko; Shiomi, Yasushi; Fujitus, Satoru; Masunaga, Katsuro; and Yanagisawa, Hiroshi, 4,384,133, Cl. 560-204.000.

Yano, Minoru: *See*—
Nagai, Masahiko; and Yano, Minoru, 4,384,178, Cl. 200-19.00R.

Yano, Tsuneomi: *See*—
Higashiyama, Kazuhiro; Hosoya, Katsumi; Kadowaki, Shyunichi; and Yano, Tsuneomi, 4,383,515, Cl. 123-489.000.

Yasaitis, John A.: *See*—
Raffel, Jack I.; and Yasaitis, John A., 4,384,299, Cl. 357-23.000.

Yates, Robert E.: *See*—
Alongi, Robert E.; Yates, Robert E.; and Leonard, John P., 4,383,662, Cl. 244-3.150.

Yokohama Rubber Co., Ltd., The: *See*—
Kawakami, Shinji; and Ishikawa, Yasuhiro, 4,384,027, Cl. 428-624.000.

Yokoyama, Junichi, to Nissan Motor Co., Ltd. Cooling system for internal combustion engine. 4,383,501, Cl. 123-41.100.

Yokoyama, Kenji, to Nippon Gakki Seizo Kabushiki Kaisha. Class A complementary single-ended push-pull amplifier. 4,384,261, Cl. 330-267.000.

Yonkers, Edward H., to Data Packaging Corporation. Cartridge having ribbon inverting means. 4,383,774, Cl. 400-195.000.

Yoshida Tokyo K. K.: *See*—
Tsubata, Noritaka; and Shimono, Muchiji, 4,383,558, Cl. 139-384.00B.

Yoshimura, Isao: *See*—
Tashiro, Hisao; Naito, Hirokuni; Takayama, Masayuki; and Yoshimura, Isao, 4,384,032, Cl. 429-249.000.

Yoshioka, Hiroshi: *See*—
Takamizawa, Minoru; Kimura, Shigeo; Somezawa, Masashi; Kobayashi, Kunio; Inoue, Yoshio; and Yoshioka, Hiroshi, 4,384,100, Cl. 528-41.000.

Yoshioka, Hisato, to Diesel Kiki Co., Ltd. Air conditioning system for automotive vehicles having discharge air temperature control function. 4,383,574, Cl. 165-43.000.

Yoshitsugu, Noritada, to Toyota Jidosha Kogyo Kabushiki Kaisha. Occupant protective device. 4,383,704, Cl. 280-750.000.

Yoshizawa, Akinori, to Toho Aen Kabushiki Kaisha; and Yoshizawa, Akinori. Process for producing fine powdery metal. 4,383,852, Cl. 75-0.50B.

Yotoriyama, Minoru. Disposable container. 4,383,635, Cl. 229-1.50H.

Young, Chung-I; and Williams, Brian H., to Minnesota Mining and Manufacturing Company. Transfer process. 4,383,878, Cl. 156-235.000.

Young, Ian R.; and Harrison, Colin G., to Picker International Limited. Nuclear magnetic resonance systems. 4,384,255, Cl. 324-309.000.

Young, Ivan R.: *See*—
Crawford, Thomas M.; Reynolds, Alastair S.; and Young, Ivan R., 4,384,354, Cl. 375-10.000.

Young, Peter D. Impregnation of porous articles. 4,384,014, Cl. 427-294.000.

Yusa, Hideo: *See*—
Chino, Koichi; Yusa, Hideo; and Kamiya, Kunio, 4,383,888, Cl. 159-49.000.

Zahir, Sheik A.; and Eldin, Sameer H., to Ciba-Geigy Corporation. Propenyl-substituted phenolglycidyl ethers, processes for producing them, and their use. 4,384,129, Cl. 549-560.000.

Zahnradfabrik Friedrichshafen, AG: *See*—
Lang, Armin, 4,383,587, Cl. 180-148.000.

Zakarian, John A.: *See*—
Powell, Bruce E.; Mayer, Jerome F.; and Zakarian, John A., 4,383,913, Cl. 208-59.000.

Zakhvatkina, Klara A.: *See*—
Muldashev, Ernst R.; Nigmatullin, Rafik T.; Galimova, Venera U.; Zakhvatkina, Klara A.; and Muslimov, Sagit A., 4,383,338, Cl. 3-13.000.

Zakrzewski, Thaddeus J.: *See*—
Loving, Robert O., Jr.; Zakrzewski, Thaddeus J.; Stedman, Robert B.; and Osberg, Daryl F., 4,384,165, Cl. 174-35.0GC.

Zane, Anthony J.; and Beurer, Frederick C. Instant position finder and course plotter. 4,383,372, Cl. 33-276.000.

Zapffe, Carl: *See*—
Zapffe, Carl A., 4,383,853, Cl. 75-122.700.

Zapffe, Carl A., to McCollough, William J.; and Zapffe, Carl. Corrosion-resistant Fe-Cr-uranium^{238} pellet and method for making the same. 4,383,853, Cl. 75-122.700.

Zecher, Wilfried; and Merten, Rudolf, to Bayer Aktiengesellschaft. Process for the production of imidazolidine triones. 4,384,122, Cl. 548-307.000.

Zehnder, Walter: *See*—
Boschung, Marcel; and Zehnder, Walter, 4,383,770, Cl. 374-25.000.

Zelt, Edward J., to Stackpole Corporation, The. Radio-frequency interference suppressing system for permanent magnet field motor. 4,384,223, Cl. 310-68.00R.

Zerlik, Willibald, to BBC Brown, Boveri & Company, Limited. Flexible, electrically insulating pipe connection. 4,384,222, Cl. 310-61.000.

Ziets, George A.: *See*—
Dubash, Darius D.; Kaplan, Leonard L.; and Ziets, George A., 4,383,986, Cl. 424-25.000.

Zimmer USA, Inc.: *See*—
Volz, Robert G.; Vazzile, Richard R.; and Bolesky, Richard C., 4,383,337, Cl. 3-1.910.

Zintl, Inge: *See*—
Beltz, Klaus; Frankenfeld, Klaus; Lehmann, Rainer; and Zintl, Inge, 4,383,978, Cl. 423-9.000.

Zirkle, Charles L.: *See*—
Bondinell, William E.; Lafferty, John J.; and Zirkle, Charles L., 4,383,999, Cl. 424-266.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 17TH DAY OF MAY, 1983

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

AB Karlshamns Oljefabriker: *See*—
Andlid, Sune; and Linden, Lennart, Re. 31,242, Cl. 252-49.500.

Adrian, Werner K.; and Borkenstein, Robert F., to BDT Buro-und Datentechnik GmbH. Determination of the alcohol content of blood. Re. 31,246, Cl. 250-343.000.

Andlid, Sune; and Linden, Lennart, to AB Karlshamns Oljefabriker. Metal working emulsion. Re. 31,242, Cl. 252-49.500.

Balint, Nikolaus K., to Standard Oil Company (Indiana). Catalyst system. Re. 31,243, Cl. 252-429.00B.

BDT Buro-und Datentechnik GmbH: *See*—
Adrian, Werner K.; and Borkenstein, Robert F., Re. 31,246, Cl. 250-343.000.

Borkenstein, Robert F.: *See*—
Adrian, Werner K.; and Borkenstein, Robert F., Re. 31,246, Cl. 250-343.000.

Electromagnetic Energy Corporation: *See*—
Klaila, William J., Re. 31,241, Cl. 431-11.000.

Fujii, Kozo; Nishihira, Keigo; Matsuda, Masaoki; Uchiumi, Shinichiro; and Nishimura, Kenji, deceased (by Nishimura, Yoko, administrator), to UBE Industries, Ltd. Process for preparing a diester of oxalic acid in the gaseous phase. Re. 31,245, Cl. 560-193.000.

Johnstone, Richard, to Kearney & Trecker Corporation. Diagnostic communications system for computer controlled machine tools. Re. 31,247, Cl. 364-474.000.

Kearney & Trecker Corporation: *See*—
Johnstone, Richard, Re. 31,247, Cl. 364-474.000.

Klaila, William J., to Electromagnetic Energy Corporation. Method and apparatus for controlling fluency of high viscosity hydrocarbon fluids. Re. 31,241, Cl. 431-11.000.

Leo Pharmaceutical Products Ltd. A/S (Lovens kemiske Fabrik Produktionsaktieselskab): *See*—
Petersen, Hans J., Re. 31,244, Cl. 424-263.000.

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McCarty, Ralph William, to Extrude Hone, Inc. Method of honing by extruding. B1 3,521,412, Cl. 51—317.

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Leo, Thomas J.; and Johansson, Anders H., to Wyrough and Loser, Inc. Coprecipitation process. B1 4,110,240, Cl. 252—182.

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O'Driscoll, John L. Face for motor vehicle air pressure gauge. 268,992, 5-17-83, Cl. D10-125.000.

O'Driscoll, John L. Face for motor vehicle manifold vacuum gauge. 268,993, 5-17-83, Cl. D10-125.000.

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O'Driscoll, John L. Face for motor vehicle oil temperature gauge. 268,995, 5-17-83, Cl. D10-125.000.

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Stetler, Dwight L.; and Stoner, Arthur L., to Wilbur Curtis Company, Inc. Coffee brewer. 269,011, 5-17-83, Cl. D7-308.000.

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Tutton, William G. G., to Auto Alloys R & D Limited. Impeller wheel blade for an abrasive blasting machine. 269,012, 5-17-83, Cl. D15-126.000.

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Pellett, Harold M.; and Snyder, Leon C., to University of Minnesota. Red maple tree. 5,053, 5-17-83, Cl. 51.000.

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235.1	4,383,418
238.6	4,383,419
323.4	4,383,420
333	4,383,421
457	4,383,422
467 R	4,383,423
476	4,383,424

CLASS 65

2	4,383,843
4.21	4,383,844

CLASS 70

312	4,383,425

CLASS 71

16	4,383,845
33	4,383,846
34	4,383,847
88	4,383,848
	4,383,849
	4,383,850
94	4,383,851

CLASS 72

63	4,383,426
71	4,383,427
88	4,383,428
318	4,383,429
387	4,383,430

CLASS 73

4 R	4,383,431
6	4,383,432
23.1	4,383,433
35	4,383,434
37.7	4,383,435
46	4,383,436
61 R	4,383,437
61.2	4,383,438
116	4,383,439
117.3	4,383,440
	4,383,441
119 R	4,383,442
290 V	4,383,443
304 C	4,383,444
	4,383,445
579	4,383,446
626	4,383,447
637	4,383,448
764	4,383,449
790	4,383,450
864.41	4,383,451

CLASS 74

5.47	4,383,452
128	4,383,453
337.5	4,383,454
469	4,383,455
866	4,383,456

CLASS 75

0.5 B	4,383,852
122.7	4,383,853

CLASS 82

1 C	4,383,457

CLASS 83

405	4,383,458
411 R	4,383,459
886	4,383,460

CLASS 84

1.03	4,383,461
1.26	4,383,462
1.27	4,383,463
21	4,383,464
199	4,383,465
313	4,383,466
415	4,383,467

CLASS 86

1 R	4,383,468
10	4,383,469
20 R	4,383,470

CLASS 89

1 K	4,383,471
7	4,383,472
40 K	4,383,473
41 ME	4,383,474

CLASS 91

337	4,383,475
442	4,383,476

CLASS 98

41 AV	4,383,477
59	4,383,478

CLASS 99

572	4,383,479

CLASS 100

98 R	4,383,480

CLASS 101

116	4,383,481
127	4,383,482
375	4,383,483

CLASS 102

275.3	4,383,484
364	4,383,485

CLASS 106

3	4,383,857
18.14	4,383,858
22	4,383,859
27	4,383,860
38.3	4,383,861
88	4,383,862
125	4,383,863
281 R	4,383,864
308 B	4,383,866
308 N	4,383,865
311	4,383,867

CLASS 108

2	4,383,486
27	4,383,487
129	4,383,488

CLASS 112

103	4,383,489
121.15	4,383,490
262.2	4,383,491
439	Re.31,240

CLASS 114

103	4,383,492
294	4,383,493

CLASS 118

50	4,383,494
406	4,383,495
504	4,383,496
651	4,383,497
657	4,383,498

CLASS 122

18	4,383,499
491	4,383,500

CLASS 123

41.1	4,383,501
41.44	4,383,502
73 AD	4,383,504
73 PP	4,383,503
146.5 A	4,383,505
179 G	4,383,506
179 H	4,383,507
193 P	4,383,508
	4,383,509
352	4,383,510
359	4,383,511
440	4,383,512
454	4,383,513
481	4,383,514
489	4,383,515

CLASS 124

88	4,383,516
101	4,383,989

CLASS 126

61	4,383,517
79	4,383,518
190	4,383,519
424	4,383,520
430	4,383,521

CLASS 128

1 C	4,383,522
75	4,383,523
	4,383,524
79	4,383,525
87 R	4,383,526
92 EB	4,383,527
205.22	4,383,528
207.21	4,383,529
419 P	4,383,532
660	4,383,533
671	4,383,534
777	4,383,535

CLASS 130

27 R	4,383,536

CLASS 131

280	4,383,537
300	4,383,538

CLASS 132

88.5	4,383,539

CLASS 133

3 H	4,383,540
8 A	4,383,541

CLASS 134

7	4,383,868
105	4,383,542

CLASS 136

245	4,384,163
	4,384,164

CLASS 137

78.3	4,383,543
94	4,383,544
204	4,383,545
240	4,383,546
	4,383,547
321	4,383,548
514.7	4,383,549
517	4,383,550
593	4,383,551

CLASS 138

46	4,383,552
	4,383,553
101	4,383,554
129	4,383,555
172	4,383,556

CLASS 139

93	4,383,557
384 B	4,383,558

CLASS 140

92.2	4,383,559

CLASS 144

209 A	4,383,560
245 A	4,383,561

CLASS 145

2 R	4,383,562

CLASS 148

1.5	4,383,869
9 R	4,383,870
12.4	4,383,871
175	4,383,872

CLASS 149

2	4,383,873
21	4,383,874

CLASS 150

0.5	4,383,564
1.5 R	4,383,563
52 J	4,383,565

CLASS 152

158	4,383,566
209 B	4,383,567
209 R	4,383,568

CLASS 156

69	4,383,875
110 R	4,383,876
155	4,383,877
235	4,383,878
307.7	4,383,879
361	4,383,880
	4,383,881
552	4,383,882
603	4,383,883
642	4,383,884
643	4,383,885
659.1	4,383,886

CLASS 159

13 A	4,383,887
49	4,383,888

CLASS 160

116	4,383,569

CLASS 162

26	4,383,889
157.6	4,383,890

CLASS 164

57.1	4,383,570
446	4,383,571

CLASS 165

5	4,383,572
7	4,383,573
43	4,383,574
55	4,383,575
104.17	4,383,576

CLASS 166

95	4,383,577
373	4,383,578

CLASS 169

62	4,383,579

CLASS 172

21	4,383,580

CLASS 173

16	4,383,581
131	4,383,582

CLASS 174

35 GC	4,384,165
42	4,384,166
71 R	4,384,167
126 S	4,384,168

CLASS 175

20	4,383,583

CLASS 177

208	4,383,584
210 FP	4,383,585
229	4,383,586

CLASS 179

1 SM	4,384,169
	4,384,170
84 C	4,384,171
98	4,384,172
115.5 PV	4,384,173
115.5 R	4,384,174
175.2 C	4,384,175

CLASS 180

70	4,383,588
148	4,383,587
165	4,383,589
314	4,383,590

CLASS 181

106	4,383,591

CLASS 182

70	4,383,592

CLASS 188

71.4	4,383,593
71.5	4,383,594
281	4,383,595

CLASS 192

3.31	4,383,596
58 B	4,383,597

CLASS 193

35 A	4,383,598

CLASS 194

54	4,383,599

CLASS 198

347	4,383,600
394	4,383,601
396	4,383,602
731	4,383,603
775	4,383,604
781	4,383,605

CLASS 200

1 A	4,384,176
5 R	4,384,177
19 R	4,384,178
50 AA	4,384,179
52 R	4,384,180
61.76	4,384,181
82 B	4,384,182
82 R	4,384,183
84 C	4,384,184
148 R	4,384,185

CLASS 202

234	4,383,891

CLASS 203

11	4,383,892
35	4,383,893
70	4,383,894
77	4,383,895

CLASS 204

11	4,383,896
33	4,383,897
35 R	4,383,898
59 R	4,383,899
147	4,383,900
152	4,383,901
159.15	4,383,902
159.16	4,383,903
162 R	4,383,904
180 R	4,383,905
212	4,383,909
243 R	4,383,910
409	4,383,908
416	4,383,906
426	4,383,907

CLASS 206

0.7 4,383,606
45.34 4,383,607
347 4,383,608
386 4,383,609
387 4,383,610
505 4,383,611
525 4,383,612

CLASS 208

10 4,383,911
11 R 4,383,912
59 4,383,913
177 4,383,914
183 4,383,915
189 4,383,916

CLASS 209

144 4,383,917
234 4,383,918
399 4,383,919
514 4,383,613

CLASS 210

87 4,383,920
321.1 4,383,921
521 4,383,922
654 4,383,923
662 4,383,924
708 4,383,925
4,383,926
4,383,927
724 4,383,928

CLASS 211

49 D 4,383,614
60 R 4,383,615

CLASS 212

182 4,383,616
189 4,383,617

CLASS 215

216 4,383,618
222 4,383,619
329 4,383,620

CLASS 219

10.81 4,384,186
130.51 4,384,187
4,384,188
364 4,384,189
365 4,384,190
400 4,384,191
468 4,384,192
521 4,384,193

CLASS 220

273 4,383,621

CLASS 222

209 4,383,622
521 4,383,623
600 4,383,624

CLASS 224

39 4,383,625
275 4,383,626
315 4,383,627
319 4,383,628
329 4,383,629

CLASS 225

103 4,383,630

CLASS 226

186 4,383,631
190 4,383,632
194 4,383,633

CLASS 227

19 4,383,634

CLASS 229

1.5 H 4,383,635
32 4,383,636
38 4,383,637
45 EC 4,383,638

CLASS 235

375 4,384,196
485 4,384,197

CLASS 236

11 4,383,640
49 4,383,641

CLASS 237

12.3 A 4,383,642
60 4,383,643

CLASS 239

3 4,383,644
13 4,383,645
14 4,383,646
265.19 4,383,647
419.3 4,383,648
429 4,383,649

CLASS 241

66 4,383,650
81 4,383,651
88.4 4,383,652

CLASS 242

43 R 4,383,653
43.2 4,383,654
47 4,383,655
55.2 4,383,656
55.3 4,383,657
107 4,383,658
107.2 4,383,659
197 4,383,660

CLASS 244

3.14 4,383,661
3.15 4,383,662
3.16 4,383,663
100 A 4,383,664
103 S 4,383,665
118.5 4,383,666
153 R 4,383,667

CLASS 248

63 4,383,668
210 4,383,669

CLASS 249

60 4,383,670
66 R 4,383,671
134 4,383,672
142 4,383,673
177 4,383,674
4,383,675

CLASS 250

203 R 4,384,198
204 4,384,199
205 4,384,200
221 4,384,201
223 R 4,384,202
227 4,384,203
237 G 4,384,204
265 4,384,205
339 4,384,206
343 Re.31,246
349 4,384,207
396 ML 4,384,208
550 4,384,210

CLASS 252

182 B1 4,110,240
8.05 4,383,929
8.55 D 4,383,930
32.7 E 4,383,931
49.5 Re.31,242
194 4,383,932
329 4,383,933
349 E 4,383,935
363.5 4,383,936
389 R 4,383,937
429 B Re.31,243
4,383,938
4,383,939
460 4,383,940
477 R 4,383,941
512 4,383,942
522 R 4,383,943
628 4,383,944

CLASS 256

59 4,383,676

CLASS 260

239 A 4,383,945
245.2 T 4,383,946
397.45 4,383,947
459 A 4,383,948
465 G 4,383,949
967 4,383,950

CLASS 261

30 4,383,951
72 R 4,383,952

CLASS 264

0.5 4,383,953
40.5 4,383,954
46.6 4,383,955
49 4,383,956
65 4,383,957
4,383,958
86 4,383,959
87 4,383,960
107 4,383,961
196 4,383,962
235 4,383,963
237 4,383,964
257 4,383,965
296 4,383,966
310 4,383,967
503 4,383,968

CLASS 266

87 4,383,677
142 4,383,678

CLASS 267

8 R 4,383,679

CLASS 269

17 4,383,681
43 4,383,680
76 4,383,682

CLASS 270

58 4,383,683

CLASS 272

120 4,383,684

CLASS 273

1.5 A 4,383,685
26 R 4,383,686
35 A 4,383,687
86 B 4,383,688
145 R 4,383,689
164 4,383,690

CLASS 277

134 4,383,691
178 4,383,692
204 4,383,693
231 4,383,694

CLASS 280

47.26 4,383,695
81 R 4,383,696
415 A 4,383,697
426 4,383,698
605 4,383,699
4,383,700
610 4,383,701
611 4,383,702
682 4,383,703
750 4,383,704

CLASS 282

27.5 4,383,705
4,383,706

CLASS 290

1 R 4,384,211
53 4,384,212

CLASS 292

110 4,383,707
204 4,383,708
346 4,383,709

CLASS 294

1 BA 4,383,710

CLASS 296

181 4,383,711

CLASS 297

219 4,383,712
4,383,713
325 4,383,714

CLASS 299

88 4,383,715

CLASS 301

37 R 4,383,716

CLASS 303

7 4,383,717

CLASS 305

53 4,383,718

CLASS 307

64 4,384,213
66 4,384,214
109 4,384,215
270 4,384,216
297 4,384,217
304 4,384,218
362 4,384,219
450 4,384,220

CLASS 308

187.1 4,383,720

CLASS 310

24 4,384,221
61 4,384,222
68 R 4,384,223
81 4,384,224
88 4,384,225
89 4,384,226
213 4,384,227
313 D 4,384,228
315 4,384,229
317 4,384,230
335 4,384,231
370 4,384,232

CLASS 312

319 4,383,721
324 4,383,722

CLASS 313

51 4,384,233
142 4,384,234
276 4,384,235
318 4,384,236
486 4,384,237

CLASS 315

151 4,384,238
282 4,384,239

CLASS 318

255 4,384,240
317 4,384,241
721 4,384,242
729 4,384,243
803 4,384,244

CLASS 322

28 4,384,245
58 4,384,246

CLASS 323

256 4,384,247

CLASS 324

51 4,384,248
4,384,249
161 4,384,250
207 4,384,251
239 4,384,252
244 4,384,253
253 4,384,254
309 4,384,255
396 4,384,256

CLASS 328

127 4,384,257

CLASS 330

10 4,384,258
4,384,259
129 4,384,260
267 4,384,261

CLASS 331

66 4,384,262

CLASS 333

181 4,384,263
193 4,384,264

CLASS 335

216 4,384,265

CLASS 337

244 4,384,266
407 4,384,267

CLASS 339

19 4,383,724
99 R 4,383,725
198 R 4,383,726

CLASS 340

29 4,384,268
67 4,384,269
73 4,384,270
119 4,384,271
347 AD 4,384,278
347 DA 4,384,274
4,384,276
4,384,277
347 P 4,384,275
556 4,384,280
572 4,384,281
580 4,384,282
632 4,384,283
706 4,384,284
723 4,384,285
727 4,384,286
771 4,384,287
815.20 4,384,279
825.34 4,384,288
870.17 4,384,289

CLASS 343

6 A 4,384,290
17.2 PC 4,384,291
18 E 4,384,292
113 R 4,384,293
709 4,384,294

CLASS 346

75 4,384,295
4,384,296
108 4,384,297
129 4,384,298

CLASS 350

1.3 4,383,727
1.7 4,383,728
96.10 4,383,729
96.16 4,383,730
96.18 4,383,731
96.20 4,383,732
130 4,383,733
162.13 4,383,734
318 4,383,735
320 4,383,736
347 4,383,737
349 4,383,738
414 4,383,739
504 4,383,740
538 4,383,741

CLASS 352

100 4,383,742

CLASS 354

23 D 4,383,749
64 4,383,743
81 4,383,744
149 4,383,745
173 4,383,746
4,383,747
179 4,383,748
271 4,383,750
322 4,383,751

CLASS 355

3 CH 4,383,752
8 4,383,753
4,383,754
11 4,383,755
14 CU 4,383,756
53 4,383,757
68 4,383,758
85 4,383,759

CLASS 356

150 4,383,760
241 4,383,761
346 4,383,762
350 4,383,763

CLASS 357

23 4,384,299
4,384,301
42 4,384,300

CLASS 358

27 4,384,302
107 4,384,303
147 4,384,304
158 4,384,305
166 4,384,306
257 4,384,307

CLASS 360

8 4,384,308
77 4,384,309
92 4,384,310
128 4,384,311

CLASS 361

24 4,384,312
149 4,384,313
160 4,384,314

CLASS 362

33 4,384,315
147 4,384,316
183 4,384,317
216 4,384,318
296 4,384,319

CLASS 363

25 4,384,320
124 4,384,321

CLASS 364

200 4,384,322
4,384,323
4,384,324
4,384,325
4,384,326
4,384,327
4,384,328
300 4,384,329
426 4,384,330
431.12 4,384,331
474 Re.31,247
4,384,332
4,384,333
481 4,384,334
513 4,384,335
518 4,384,337
522 4,384,338
564 4,384,339
736 4,384,340
763 4,384,341
900 4,384,342
4,384,343

CLASS 365

16 4,384,344
104 4,384,345
189 4,384,346
4,384,347
201 4,384,348
218 4,384,349
229 4,384,350

CLASS 366

75 4,383,764
76 4,383,765
106 4,383,766
154 4,383,767
279 4,383,768
337 4,383,769

CLASS 367

175 4,384,351

CLASS 369

77 4,384,352

CLASS 371

38 4,384,353

CLASS 374

25 4,383,770

CLASS 375

10 4,384,354
14 4,384,355
36 4,384,356
81 4,384,357
100 4,384,358

CLASS 376

313 4,383,969

CLASS 377

8 4,384,194
53 4,384,195

CLASS 378

9 4,384,359
14 4,384,209
202 4,384,360

CLASS 382

34 4,384,273
49 4,384,336
50 4,384,272

CLASS 384

121 4,383,771
282 4,383,719

CLASS 400

55 4,383,772
156.3 4,383,773
195 4,383,774
208 4,383,775
304 4,383,776
314.6 4,383,777
569 4,383,778

CLASS 401

15 4,383,779

CLASS 403

219 4,383,780
402 4,383,781

CLASS 404

6 4,383,782

CLASS 405

171 4,383,783

CLASS 408

144 4,383,784

CLASS 409

131 4,383,785
299 4,383,786

CLASS 411

221 4,383,787

CLASS 414

71 4,383,788
277 4,383,789
293 4,383,790
542 4,383,791
563 4,383,792
4,383,807
686 4,383,793
694 4,383,794
753 4,383,795
786 4,383,796

CLASS 415

7 4,383,797
150 4,383,798
219 C 4,383,799
4,383,800

CLASS 416

17 4,383,801

CLASS 417

12 4,383,802
259 4,383,803
267 4,383,804
308 4,383,805
462 4,383,806

CLASS 419

1 4,383,854
6 4,383,856
19 4,383,855

CLASS 420

528 4,383,970

CLASS 422

40 4,383,971
131 4,383,972
151 4,383,973
176 4,383,974
4,383,975
186.18 4,383,976
235 4,383,977

CLASS 423

9 4,383,978
36 4,383,979
54 4,383,980
326 4,383,981
359 4,383,982
571 4,383,983

CLASS 424

1 4,383,984
4,383,985
25 4,383,986
49 4,383,987
68 4,383,988
180 4,383,990
224 4,383,991
238 4,383,992
239 4,383,993
245 4,383,994
248.54 4,383,995
251 4,383,996
253 4,383,997
256 4,383,998
263 Re.31,244
266 4,383,999
267 4,384,000
270 4,384,001
315 4,384,002
341 4,384,003

CLASS 425

47 4,383,808
78 4,383,809
122 4,383,810
123 4,383,811
133.1 4,383,812
204 4,383,813
338 4,383,814
387.1 4,383,815
451.9 4,383,816
463 4,383,817
546 4,383,818
577 4,383,819

CLASS 426

3 4,384,004
250 4,384,005
383 4,384,006
534 4,384,007
613 4,384,008
618 4,384,010
646 4,384,009

CLASS 427

54.1 4,384,011
130 4,384,012
255.4 4,384,013
294 4,384,014
402 4,384,015

CLASS 428

1 4,384,016
12 4,384,017
95 4,384,018
106 4,384,019
138 4,384,020
193 4,384,021
296 4,384,022
338 4,384,023
349 4,384,024
411 4,384,025
412 4,384,026
624 4,384,027

CLASS 429

105 4,384,028
169 4,384,029
174 4,384,030
176 4,384,031
249 4,384,032

CLASS 430

42 4,384,033
83 4,384,034
103 4,384,035
113 4,384,036
191 4,384,037
321 4,384,038
422 4,384,039
532 4,384,040

CLASS 431

8 4,383,820
11 Re.31,241

CLASS 432

43 4,383,821
148 4,383,823
222 4,383,824
247 4,383,822
258 4,383,825

CLASS 433

228 4,383,826

CLASS 434

69 4,383,827

CLASS 435

24 4,384,041
25 4,384,042
71 4,384,043
101 4,384,044
176 4,384,045

CLASS 440

69 4,383,828
75 4,383,829
104 4,383,830

CLASS 441

22 4,383,831

CLASS 445

54 4,383,723

CLASS 455

31 4,384,361
33 4,384,362
58 4,384,363
60 4,384,364
183 4,384,365
278 4,384,366
325 4,384,367
602 4,384,368

CLASS 494

43 4,383,639

CLASS 501

95 4,384,046

CLASS 521

64 4,384,047
89 4,384,048
90 4,384,049
137 4,384,050
4,384,051
162 4,384,052

CLASS 523

153 4,384,053
156 4,384,054
174 4,384,055
221 4,384,056
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